

*A Plea for Time: Northern Aboriginal Peoples Advocate for the
Right to Communicate on the Information Highway.*

Nicole Matiation

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Abstract

A Plea for Time : Northern Aboriginal Peoples Advocate for the Right to Communicate on the Information Highway.

Nicole Matiation

This thesis examines events and policy documents between 1993 and 1998 which are pertinent to the development of the information highway in the Northwest Territories and Nunavut. The focal event discussed is *Connecting the North*, an interactive broadcast symposium held in 1994, as it represents a large-scale non-government initiated public consultation which impacted on the federal government's national policy for the information highway. Innis' theory of communications provides a theoretical framework for understanding the importance of infrastructure in determining use and format. Locally, the development of a northern information highway is an important opportunity for northern aboriginal peoples to define how they want to interact with each other, with the rest of Canada and with the world. The development of the northern information highway is discussed in terms of the concepts of self-determination and the right to communicate. Canada's north offers a rare opportunity to examine the role that telecommunications infrastructure plays in determining format, and ultimately content, as well as the role of public policy in ensuring the right to communicate for all citizens.

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Chapter 1

The Right to Communicate: Commodity or Community?

People in the Northwest Territories have become part of the "global village"-- impacted by many of the changes affecting people and government everywhere. Technology, financial restraint, the changing role of government, the changing nature of programs and services are universal forces shaping the future of everything we do (Northwest Territories Education, Culture and Employment September 1994: 10).

Pathways of the past were forged by dogsled and snowmobile. The pathways of the present are travelled by air. The pathways of the future will be travelled electronically. The resources of the future are information and the people who use it. Nunavut must be linked to the "Information Highway" (Nunavut Implementation Commission 1995a: 54)

1.1 Introduction

The development of a northern information highway infrastructure in the late 1990s marks a new era in the history of communications technology in Canada's north. Canada's north is roughly defined by Louis-Edmond Hamelin as the area north of 60°.¹ In 1993 the northern telecommunications infrastructure lagged behind the basic telephone services offered in southern Canada, leaving northern communities at risk of being marginalized from mainstream Canada as it embraced the information highway as the means to successful economic growth. The major obstacle to developing the information highway in the North was

¹ 60° is only a very rough guideline as the hamelin line actually dips as low as 50° latitude in Eastern Canada and 55° in British Columbia. Hamelin takes into account the following ten characteristics of nordicity in determining what constitutes the north. The ten characteristics of nordicity are: latitude, summer heat above 5.6°C, annual cold below 0°C, types of ice (in the ground, on the land and in the water), total precipitation, development of vegetation, accessibility (by air or surface), number of inhabitants and degree of economic activity (Hamelin, Louis-Edmond. *Canadian Nordicity*. Montreal: Harvest Press, 1978).

the difficulty of finding a cost-effective manner to connect northern communities to each other and to the south (Government Northwest Territories January, 1995: 1).

The development of the information highway in northern Canada is an issue of concern for all northerners; however, it is an issue of particular importance to northern aboriginal peoples² for the following three reasons.

- 1) Communications technology has for some time been recognized as key in defining cultural and political autonomy. This theme is discussed in Chapter Two.
- 2) The separation of the Northwest Territories and Nunavut³ has precipitated a decentralization of government services and increased involvement of northern aboriginal peoples in the delivery of government services. The information highway appears to provide an opportunity to carry this out over an expansive geography. The significance of the re-organization of northern governments and the implementation of Nunavut is discussed later in this chapter.
- 3) Northern Native Communications Societies initiated a northern public consultation process that brought many concerns of both aboriginal (and non-aboriginal) northerners to the forefront of discussions on the information highway.

Writing in the south, I have looked north to find an interesting model for the public policy process. I have looked at this process and the first steps towards implementation in terms of the concept of "the right to communicate" and in terms of the active role northern aboriginal

² I use "northern aboriginal peoples" as an inclusive term for the indigenous peoples living in Canada's North. Whenever possible I have tried to refer to the particular group of indigenous people such as Inuit or Dogrib when dealing with an issue, project or theme that is particularly pertinent to that group.

³ "Nunavut consists of all of Canada north of 60°, east of the western boundary that is not part of Quebec or Newfoundland; and includes the islands of Hudson Bay, James Bay and Ungava Bay that are not within Manitoba, Ontario or Quebec" (Nunavut Implementation Commission 1995a: A-1.2). On April 1, 1999 Nunavut officially separated from the Northwest Territories. It has its own elected premier and governing structure.

organizations have played in the development of communications policy both on a regional and a national level. In describing and analyzing the development of the information highway in the north, I have attempted to identify issues and events specific to northern aboriginal peoples as they represent 41% of the population of the Northwest Territories and 85% of the population of Nunavut (Government Northwest Territories 1994: 6). When addressing issues or events that are significant for both aboriginal and non-aboriginal northern residents, I have attempted to indicate this as well.

This thesis provides a chronological description of the development of the information highway in the Northwest Territories and Nunavut from 1993 to 1998 within the context of the federal government's discourse on the information highway. This five year period has both national and regional significance. In February 1993, the federal government's intention to develop a national information highway was announced. Later that same year, the Inuit Broadcasting Corporation (IBC) conducted a broad-based pan-Arctic analysis of communications technology need and use entitled, *Connecting the North: Defining Northern User's Needs*. The IBC needs analysis created a corpus of information that demonstrated the importance of communications technology in terms of work, education and culture. As a result, a lobby for improved communications technology and access to the information highway in the north was initiated by northerern Native Communications Societies and strongly supported by northern governments and northern aboriginal political organizations. In 1998, a digital communications network (DCN) was installed in the north,

effectively providing a network to link all 58 recognized communities⁴ of the Northwest Territories (NWT) to each other and to the south. During this five-year period the federal government allotted funding for the information highway infrastructure and established a federal action plan for the information highway.

Looking beyond the chronology of events, this thesis examines the role of the public consultation process and subsequent lobbying carried out by northern aboriginal peoples in relation to the national policy on the information highway that emerged in the mid 1990s. Finally, it analyzes the first steps in the implementation of the northern information highway carried out by the Government of the Northwest Territories (GNWT) as an expression of the compromise between the aspirations of northern aboriginal peoples and the objectives of the federal and territorial governments.

As a technology representing the convergence of computer and telecommunications technology on a multi-media platform incorporating audio, video, photography, animation, graphics and print mediums, the information highway is a hybrid medium adapted to two-way communication. As a medium for two-way communication that could potentially link all the countries in the world, it seems to represent the fulfillment of Marshall McLuhan's prediction that the electronic age would lead to a "global village" (McLuhan 1962: 31). The "global village," though, is an elitist club requiring hardware and software that the majority of the world's population cannot access. Ironically, those living in

⁴ The GNWT recognizes 58 communities within its territory. A few very small communities do not have commercial power or telephones and, therefore, are not officially recognized (Personal Interview, Gordon Robinson: June 4, 1998).

villages, principally in developing countries or remote regions of the world are least likely to have access to the electricity, telephones and computers needed to join the “global village.” McLuhan’s “global village” appears to more closely resemble a posh country club for affluent corporations and those individuals able to afford or access a computer connected to the Internet. This “village” is actually predisposed to favour urban settings over rural, semi-rural and remote locations. The development of communications technology in Canada’s north offers an example of this pattern of telecommunications development, while in the case of the information highway, presenting a model for overcoming the urban predisposition of communications technology by recognizing communications as a basic human right rather than as a business tool.

The information highway did not begin as a business tool but rather as a communications network called the Internet. The Internet was an electronic research network developed by the United States military and academics to communicate nationally, and eventually, internationally. While the roots of the information highway lie in a network used primarily to share information on a non-commercial basis, multi-national corporations, and some governments, have seen the promise of economic growth in the information highway. As a result, two models for the information highway are emerging: one, commonly attributed to the imperatives of big business and multi-national corporations, views the information highway as a new and efficient system for delivering products and services (communications-as-commodity); the second, reflecting the origins of the Internet as a cooperative network of networks created for the purpose of research and discussion, views the information highway as a new forum for public expression (communications-as-community)

(Menzies 1996: 55). While both aspects of the information highway currently coexist, policy decisions by the government of Canada in the 1990s have tended primarily to support the commercial vision (Ibid.: 133).

This has important ramifications in terms of the development of the telecommunications infrastructure in Canada, particularly in the north (as well as rural and other remote regions) where communications technology has been introduced and developed following a Canadian tradition of public service. The federal government discourse on the information highway seems to assume that once a technical infrastructure is built, opportunities to discuss and develop content and deal with issues of public access to the new communications network will arise (Ibid.: 52-55). Harold A. Innis' theory of communications bias would suggest otherwise. Innis demonstrates that a particular communications bias leads to a monopoly of knowledge expressed in the communications structure which, in turn, determines how society is organized, who will use the medium, as well as, how, when and for what purpose.

1.2 Thesis Statement

Innis' theory is pertinent to the history of communications in the north which can be characterized by northern aboriginal peoples' struggle for control over the media and telecommunications services available in their communities. Although northern Canada is an isolated and unique region, the northern experience of designing and implementing an information highway infrastructure offers insight about the conflict between the forces representing private enterprise (communications-as-commodity) and

those representing a public service tradition (communications-as-community).

Locally, the development of a northern information highway represents an important opportunity for northern aboriginal peoples to define how they want to interact with each other, with the rest of Canada and with the world. In this thesis, the development of Canada's northern information highway is discussed within the international context of the concepts of self-determination and the right to communicate. Canada's north offers a rare opportunity to examine the role that telecommunications infrastructure plays in determining format, and ultimately content, as well as the role of public policy in ensuring the right to communicate for all citizens.

1.3 The Right to Communicate: Building a *Global Village*⁵

Concepts of democracy and the right to freedom of expression and information, along with development theory (supported by comparative media studies by theorists such as Harold A. Innis), have evolved this century to recognize, and begin to accept, cultural diversity. This has opened opportunities for colonized indigenous peoples to reclaim their cultural and political independence through recognition of the right to self-determination both for nations and for minorities within nations (Herringer 1989: 46). "A key element of self-determination is the

⁵ I have used McLuhan's term "global village" with some trepidation as it is fraught with difficulty. As discussed earlier in this chapter, the principle difficulty is the underlying assumption that everyone on the planet will have equal access to the necessary equipment in order to be able to communicate in the "global village." I am using this term, however, because it provides a vivid metaphor for the idea of "communications-as-community" proposed by Menzies and the notion of a "public sphere" called for by Innis.

freedom to express one's culture, a recognized international right (Ibid.: 47-54).⁶ This in turn has led to an increased understanding of the critical role communications plays in determining social, cultural and political expression. As a result, the concept of the "right to communicate" has evolved (Ibid.: 1-3).

Rooted in early concepts of democracy, the development of the notion of the right to communicate has increased in urgency in the 20th century as communications technologies have progressed more rapidly than at any other time in human history. Current understandings of communications theory have moved from what is commonly called the transportation model in which a piece of information is delivered from a sender to a receiver via some medium of communication to a much broader understanding of the term encompassing both the technical and human aspects of communications infrastructure.

The 1980 Report by the International Commission for the Study of Communications Problems (the MacBride Commission) lists the following functions of communications:

- information;
 - socialization;
 - debate and discussion;
 - education;
 - cultural promotion and entertainment
- (MacBride 1980: 14).

⁶ The principal international treaties addressing minority rights to culture, language and religion are: The International Covenant on Civil and Political Rights (1966); The International Covenant on Economic, Social and Cultural Rights (1976); the UNESCO Convention Against Discrimination in Education (1960) (Herringer 1989: 48). The Universal Declaration of Human Rights also indicates the importance of culture in Articles 22 and 27 (Ibid.: 52).

These functions form the basis for human activity. They are derived from the notion that communication "is a basic human need and the foundation of all social organization" (MacBride 1980: 54).

As a new medium that requires significant reconstruction of the technical infrastructure to make it an operational global network (and to maintain it at optimal conditions), the information highway provides a unique opportunity to ensure the right to communicate for all. In the "global village" predicted by Marshall McLuhan, the peripheries of society disappear, as do centres, as all points in the "global village" are assumed to have equal access to information and the ability to distribute information. For Innis, "the unstated presupposition of democratic life was the existence of a public sphere, of an oral tradition, of a public discourse as a necessary counterweight to printing" (Carey 1992: 165). McLuhan's "global village" and Innis' "public sphere" represented a return to open public debate and discussion, a key aspect of humanity, that they felt went unrecognized in the development of a literate culture (McLuhan 1962: 31; Innis 1991: 82 & 90). The question is: does the information highway hold out this promise?

1.4 The Information Highway: Commodity or Community?

The information highway is the whole of all current and coming telecommunications systems (technical infrastructure) and the information they carry (content). Until very recently the telephone, the television, the radio and the computer operated independently of each other, each dependent on its own closed-circuit system -- telephones were connected to telephones, televisions and radios received corresponding broadcasts, and the computer was a stand-alone word-processor. The

invention of the microprocessor, a tiny computer on a silicon chip, along with satellite technology has modified this configuration. Consequently, communications have become ever more rapid and flexible, no longer tied to the ground but free to bounce around the globe from microwave tower to satellite. Computers are now connected through local area networks (LANS), city-wide metropolitan area networks (MANS) and large wide area networks (WANS) which are in turn connected to other WANS, creating the network of networks of the information highway (Shade 1994: 54). Digitization of signals and compression techniques further increase the speed of telecommunications whether it be via computer networks, telephone lines, microwave links, satellite links, fiber optic cables, television cable or even the broadcast spectrum.

The convergence of all telecommunications technologies with computer technology forms the technical infrastructure for the information highway. That infrastructure is capable of supporting a variety of applications including: audio, video, graphics and print. As a result, the content that makes up the information highway is potentially diverse, although heavily text-based in its origins due to technical limitations, and the fact that it was initially developed as a data network for research purposes by a literate print-based society. The Internet, while appearing to form the basis for the information highway, is in fact only one component of a larger vision for global communications that includes such technologies as video-conferencing and specialized applications for telehealth.

The explosion in communications technology is directly related to the technological restructuring of corporations and the workplace (Menzies 1996: 21-22). The introduction of the computer to the workplace and the

development of global communications networks is having a profound impact on how society is organized (Ibid.: 21-22). Heather Menzies and James W. Carey see this as the logical ultimate expression of a mercantile space-binding culture (Ibid.: 22; Carey 1992: 171). The strength of multi-nationals and the corporate agenda is reflected in the official discourse of both the Canadian and American governments which does not appear to take into account the origins of the information highway (Menzies 1994: 21).

A brief outline of the history of the Internet is useful in understanding how official discourse can affect the development of technical infrastructure and thus impact on the way a medium is used by society. In the 1960s, the United States military developed a communications and scientific research network. In 1983, the military and civilian components split and the Internet was officially born as the civilian element using the National Science Foundation as a backbone network (NSFnet) primarily for university staff and students (Pavlik 1998: 30). The Internet gradually expanded to include universities, government offices, schools and community freenets in the United States, Canada and throughout the world (Shade 1994: 55).

Although available to an elite population, the Internet adopted a democratic and cooperative structure in which nobody and everybody owned the network (Pavlik 1998: 29). In 1994, the Internet Society⁷ began to convert from the publicly funded NSFnet to privately funded telecommunications companies to provide an infrastructure (Ibid. 1998:

⁷ Founded in 1992, the Internet Society is an international organization for global cooperation and coordination for the Internet and Internet networking technologies and applications (Internet Society. Home Page [www.iscos.org] March 25, 1999).

30). This move towards privatization was preceded by the introduction of legislation to build a national research and education network (NREN) in the United States. In September of 1993, the United States Government announced it was allocating \$2 billion a year for its "National Information Infrastructure" (NII) (Information Highway Advisory Council 1994: 4). The Canadian Government also began planning for its own national network: the Canadian Network for the Advancement of Research, Industry and Education (CANARIE).

The United States presented the information highway in terms of an opportunity for economic renewal (Menzies 1994: 21). The Canadian Government quickly followed suit, speaking of the information highway in terms of job creation and growth (Gerard 1994: 3). Public discourse in the media and through federal government documents increasingly couched discussion related to the information highway in economic terms, gradually defining and essentially limiting the discourse on the form the information highway should take (Menzies 1996: 16). The official discourse supported a "commodity-communications" model over the "community-communications" model reflected in the origins of the Internet and the growth of freenets (Ibid.: 16).

The nature of telecommunications services and the way in which public policy is decided in southern Canada contributed to focusing the official, public discussion about the information highway on the model of economic renewal (commodity-communications). In southern Canada, communications systems have evolved over time as telecommunications companies upgraded services within busy, profitable urban centres to meet, and at times, anticipate customer demand. As a result, there was little public consultation in the south (Shade 1993: 53-54). As the

information highway grew and gained in popularity, the telecommunications systems were in place, ready to transmit services as they developed, and the customers were present in sufficient force to cover the cost of upgrades, all in pursuit of profit.

The situation in northern Canada is intrinsically different as the development of the information highway in the north required the deliberate and costly upgrading of telecommunications systems in a region whose population cannot bear the cost of such services. In response to the federal government's market economy biased discourse on the information highway, northern Native Communications Societies and other communications activists in the north decided to take action. The 1993 IBC needs analysis, discussed earlier, led to an interactive broadcast symposium in 1994. Called *Connecting the North*, it was carried out in recognition of the need for public consultation to address the development of telecommunications in the north. Lobbying for the development of a northern information highway in Canada's north was not an isolated initiative on the part of northern aboriginal organizations, but rather a natural outcome of a history of political activism related to the development of communications technology in the north.

1.5 Gaining a National Voice in Canadian Public Policy: From an Oral Tradition to a Pan-Arctic Broadcast Network

The history of Canada's north has been characterized by the relationship between indigenous northern aboriginal peoples and Euro-Canadians. Gail Valaskakis identifies the relationship between Inuit and Euro-Canadians as "the critical nexus of social history in the North" and examines how that

relationship has been articulated in terms of communications technology (Valaskakis 1981: 209).

The relationship was founded on exploration (ethnography), whaling (resource development), missionaries (communications technology), trappers (exchange economy) and government personnel (economic and political dependency) -- initially the Royal Canadian Mounted Police.⁸ Valaskakis proposes that the relationship between Inuit and Euro-Canadians has evolved as a sort of dialectic mediated by technology. In terms of communications technology, Valaskakis recognizes missionaries as the primary change agents as they were responsible for introducing writing and print technologies to the north. Using Innis' theory of communication bias, Valaskakis demonstrates how the introduction of communications technology has acted to reorganize Inuit society (oral tradition) since contact with Euro-Canadian society (literate tradition).

Valaskakis' identification of the critical role played by communications in contextualizing the relationship between Inuit and other Canadians applies to the introduction of all communications technologies in the north (including broadcast media, the telephone and now the information highway); however, the arrival of broadcast media marked a new era in northern communications and its subsequent development required other frameworks for understanding (Roth 1994: 15).⁹

The development of the information highway in the north is also closely linked to the Canadian public policy process; however, its development is taking place within a particular political context that must be taken into

⁸ The RCMP were originally called the North-West Mounted Police.

⁹ For a detailed history of the evolution of broadcast media in Canada's North and analysis of the pertinent development theory, see Roth (1994).

account. Innis examined communications media in relation to a particular environment (Angus 1998: 22), and it is crucial to do so in examining the potential impact of the information highway in the north.

1.6 Nunavut and the Information Highway: Moving from a Semi-colonial Territory to Self-Government

The development of the information highway in the north has coincided with the successful settlement of a large land claim by the Inuit of the eastern portion of Northwest Territories that resulted in the division of the Northwest Territories into two territories on April 1, 1999: Nunavut (Inuktitut for "our land") in the east, and the Northwest Territories in the west. This agreement represents an important "breakthrough" in self-determination and self-governance of Canadian aboriginal peoples (Nunavut Implementation Commission 1995a: 97). The separation of the Northwest Territories and Nunavut has had a profound influence on the development of a northern information highway. The land claim settlement covers 1.9 million square miles (approximately 29% of Canada), Nunavut represents an official recognition of the right to self-government and to self-determination of the Inuit living in the eastern region of the Northwest Territories. The new Territory will comprise a population of 25,000 residents, 85% of whom are Inuit (Northwest Territories Legislative Assembly Fact Sheet). While it will operate in a manner similar to that of the current Yukon and Northwest Territories (Northwest Territories Legislative Assembly Fact Sheet), Nunavut represents an opportunity for the Government of the Northwest Territories (GNWT) and the future government of Nunavut to reorganize the current "semi-colonial territorial political status of the territories"

(Herringer 1989: 222). The Nunavut Implementation Commission (NIC) has proposed a decentralized government in reaction to the traditional centralized government located in Yellowknife and Ottawa (Personal Interview, Brian McLeod: June 2, 1998). Government departments will be located in 11 of the 27 Nunavut communities.

The move to a decentralized government requires the support of an efficient and reliable telecommunications infrastructure (Nunavut Implementation Commission 1995a: 54).

New communications technologies offered through the Information Highway make this model of government a real possibility.

The implementation of Nunavut and the development of new digital communications technology, provided an opportunity for the GNWT to re-evaluate its method of delivering government services. The GNWT has aggressively pursued its vision of a pan-Arctic network to link all 58 recognized communities in its territory to a single digital communications network (DCN). In effect, the GNWT has replaced the federal government in its role of ensuring affordable public access to communications infrastructure, at least in terms of subsidizing the construction of an infrastructure. The GNWT has chosen to undertake the design and installation of the DCN as an "anchor tenant,"¹⁰ a model that reflects the GNWT's assumed responsibility of providing equal access to an information highway infrastructure for all 58 recognized communities of the Northwest Territories. It also reflects the current imperatives of the federal government to support a private enterprise model for the

¹⁰ The concept of "anchor tenant" has been increasingly used by government when it requires a particular service that may also be of benefit to the community as a whole. As "anchor tenant" the government covers the initial cost of the service which is provided by a private company and marketed to other clients (Personal Interview, Gordon Robinson: June 4, 1998).

information highway infrastructure. The development of the northern information highway represents a compromise between the commodity-communications model and the community-communications model. The lessons learned from this development can contribute to and inform national discussion about the information highway.

The history of communications technology in the north indicates that northern aboriginal peoples quickly recognized the value of the right to communicate as a function of cultural and political freedom. The path they have taken, relying on public consultation and their expertise in lobbying for communications rights, can inform a growing critical discourse around the information highway. This critical discourse is concerned with ensuring that people are able to express themselves as citizens as well as consumers on the information highway, and that public policy reflects a pro-active approach to guaranteeing the right to communicate on the information highway.

1.7 Thesis Outline and Methodology

The development of communications technologies in the north is related to the movement towards self-determination and self-government of northern aboriginal peoples. The history of communications technology in the north provides a context for exploring the federal government discourse that has emerged as the government established its action plan for the development of the information highway. This process resulted in policy decisions that will affect the infrastructure and overall vision of the information highway.

The concept of the right to communicate, the communication theory of Harold Innis, and the insight of theorist Heather Menzies offer a

framework for examining the development of the information highway in the north. In order to understand the potential impact of the information highway on northern aboriginal peoples, it is useful to examine the development of the northern information highway within a historical continuum of communications development that takes into account the role of the Canadian public policy process in establishing telecommunications infrastructures.

In Chapter Two the work of Innis provides a framework for understanding how infrastructure works to determine a particular vision. This in turn affects public policy: who is to control the infrastructure? How is the new medium to be used in society? The concept of the right to communicate places the development of communications technology in the north in an international context.

The history of the development of communications technologies in the north including writing, broadcasting and the telephone system provide a historical context for the introduction of information highway technology. The work of Gail Valaskakis provides insight into the introduction of technology into Inuit communities in the Baffin Region from first contact with Euro-Canadians to the introduction of broadcasting in the north. Lorna Roth expands on the work of Valaskakis by turning to development theory to explain the importance of securing aboriginal broadcast rights within Canadian public policy. Uschi Koebberling provides a useful analysis of the development of northern telephone services. Through an analysis of the ideas of the aforementioned theorists, Chapter Two provides the theoretical framework for this thesis.

In Chapter Three, the public consultation process adopted in the north to attempt to determine the design and process for developing the northern

information highway is examined. Relying on past experience in lobbying for communications rights, northern Native Communications Societies began a process of public consultation. This process included the IBC needs analysis conducted by teleconference in 1993, and an interactive symposium called *Connecting the North* using audio-and video-conferencing technologies. Written documentation and videotapes documenting *Connecting the North* were reviewed and personal on site, as well as telephone, interviews were conducted in researching this chapter.¹¹ The IBC needs analysis and *Connecting the North* formed the basis for a rich and coherent body of work which clearly laid out the needs and hopes of northern aboriginal (as well as non-aboriginal) peoples in terms of the development of the northern information highway. These needs and hopes which were successfully integrated into the federal government's public policy on the information highway are examined in Chapter Three.

In Chapter Four the early steps towards implementation of a northern information highway in the Northwest Territories and Nunavut are reviewed. This analysis is based primarily on personal on site and telephone interviews, as well as documentation provided by the GNWT and Ardicom Digital Communications (Ardicom), the company developing the digital communications network (DCN) for the GNWT. An analysis of the plan adopted by the GNWT explores the compromises reached between

¹¹ The research while used specifically in this chapter supplied a context for the entire thesis. The videotapes were a useful place to begin to appreciate the differences between the north and south of Canada. On site interviews offered a "real" time interaction with the people and environment of the north, which I found very helpful in furthering my own understanding of the process I was documenting. Telephone and on site interviews were conducted primarily with bureaucrats and educators due to time and financial constraints. Subsequent research could involve return visits to more communities to provide a more diverse perspective of the development and implementation of the DCN as well as to see how various communities, organizations and individuals are using it.

the imperatives of the communications-as-commodity (market economy) model and the communications-as-community (public service) model.

In the concluding chapter of the thesis, I discuss the way in which the process for designing and implementing the northern information highway can inform a national discussion on the information highway in terms of the public policy-making process and the concept of the right to communicate.

Chapter 2

Electric Speed-up: From an Oral Tradition to Satellite Communications

2.1 Introduction

Comparative media theory brings a new perspective to the study of history, economics and culture by identifying the prominent role played by communications in all aspects of human existence. The work of such comparative media theorists as Harold Innis, Marshall McLuhan, and Walter Ong contributed to a shift in the approach to development, one that recognizes the inherent worth of different values, cultures and languages. In the 1970's and 80's, communications began to be seen less in terms of a simple tool to provide information to "uneducated" or "underdeveloped" cultural groups, and more in terms of a tool for the sharing of diverse global perspectives.

The expansion of comparative media theory coincided with a movement in development theory towards a view that power and economic imbalances in the world are based on unequal economic and communications resource distribution. Called the New World Information Order (NWICO), this movement was the driving force behind a series of communications debates at UNESCO in the 1970s that contributed to the development of the concept of the "right to communicate."

These developments in media and development theory can be applied to the context of northern Canada to assist our understanding of the implications of "electric speed-up" in the north: the rapid transition from an oral tradition to satellite communications technology.

In this chapter, Innis' theory along with the work of others provides a theoretical framework for understanding the dramatic changes that have occurred in the north as a result of the introduction of communications technology. The concept of the right to communicate is also examined as it relates to communications in the north. What this analysis suggests is that, although communications technology is a relatively recent component of life in the north, northern aboriginal peoples have acted to take control of the new technologies culturally, politically and in terms of public policy. Adaptation has occurred in the technology and in the cultures and communities that use the technology.

2.2 Innis and Comparative Media Theory

Innis studied the central role communications technology has played in the development and expression of Western civilization. Through his comparative analysis of the preferred medium of communication in various ancient civilizations and throughout the history of Western civilization, he developed a theory based on the "bias of communication."

Innis identifies two primary media of communication: "oral" and "written." The primary medium of communication used by a given civilization or society reflects the particular "bias" of that group. By "bias" Innis means that the group will favour a particular form of communication because it is conducive to the values of that group. Innis described the values intrinsic to "oral-based cultures" as "time-biased" and those of "writing-based" or literate culture are described as "space-biased."

Media that emphasize time are those that are durable in character, such as parchment, clay and stone...Media that emphasize space are apt to be less durable and light in character, such as papyrus and paper (Innis 1972: 7).

Innis uses the notions of space and time to characterize not only the primary medium of communication (written as opposed to oral) but also to characterize the preferred communications technology (or medium).¹²

In describing media in terms of a space- and time-bias, Innis considered the physical attributes of the medium, how that medium affected cultural expression, and the organizing effect of the medium on society.

Materials that emphasize time favour decentralization and hierarchical types of institutions, while those that emphasize space favour centralization and systems of government less hierarchical in character (Innis 1972: 7).

Innis was concerned with the overall impact of media on society.

Innis argued that changes in communication technology affected culture by altering the structure of interests (the things thought about) by changing the character of symbols (the things thought with), and by changing the nature of community (the arena in which thought developed) (Carey 1992: 161).

To describe the impact of a space- or time-bias and on society, Innis developed the notion of "monopoly of knowledge." A monopoly of knowledge can be conceived as a sort of over-investment in one type of media, leading to a reduced capacity to deal with problems and issues which do not fit into the existing social organization. Monopoly of knowledge implies a comparison between two or more sectors within a single society, or between societies. The monopoly of knowledge determines the hierarchical organization of a particular group. Innis saw history as the struggle for domination ("empire") between time-biased and space-biased societies or sectors of that society.

¹² Ian Angus points out that Innis did not differentiate between technology and medium. Angus suggests considering the tools of speech; memory, rhetoric, delivery, as a technology supporting or defining the medium of orality (Angus 1998: 21).

Arguably, all societies persist in time and space, but the particular bias of a given society, and its particular monopoly of knowledge will determine its survival within a particular environment (Angus 1998: 18-19). While Innis identifies the vital role played by communications in the "effective government" or organization of large areas, he did not perceive the medium as independent of its environment, nor did he consider the medium to be a unique and decisive factor in determining how a given civilization was organized (Ibid. 1998: 22). The medium is a reflection of, as well as an organizing force in, a particular environment.

Angus examines Innis' discussion of Egypt and Babylonia in order to illustrate this idea. The civilizations of Egypt and Babylonia are both organized around an issue of water. Egypt, subject to regular flooding by the Nile, developed a system to predict flooding, one which was heavily dependent on time. The preferred medium of the Egyptians was stone. This includes monuments as well as writing. Babylonia, in contrast, was concerned primarily with space as it developed systems of irrigation to ensure a large area had sufficient water. The preferred medium was papyrus. The respective media adopted by each culture reflected the particular environment and problems each faced.

In demonstrating the important role context or environment plays in Innis' theory of communication, Angus opposes Innis' theory to that of the "transportation model of communications." In the transportation model, the medium is viewed as a channel for content whereas in Innis' theory media are viewed in terms of the social relations (Ibid. 23). "Media cannot be understood as a certain specific category of technologies, but are the communicative aspect of the technologies themselves" (Ibid. 22). This interpretation of Innis is critical in its response to misinterpretations of

Innis in which he is identified as a technological determinist (Ibid. 20). Innis' contribution is more adequately expressed in terms of a figure/ground relationship in which competing monopolies of knowledge (the status quo or dominant sector of society and emergent social movements) interact within empire (Ibid. 25). In this way Innis contributes not only a historical interpretation of civilization based on the interplay between space-biased and time-biased cultures, but offers clues for the interpretation of the present state of society (Ibid. 24).

2.2.i *A Plea for Time: Innis' Communication Bias*

Innis, reflecting on his own times, stated that: "My bias is with the oral tradition, particularly as reflected in Greek civilization, and with the necessity of recapturing something of its spirit" (Innis 1991: 190). By this, Innis did not mean that Ancient Greece was a utopia, but rather that orality, and a time-bias, has a role to play in stabilizing society (Angus 1998: 25). Innis saw some hope for time in radio, film and television as they reintroduced "orality" and seemed to herald a return to a public sphere.

Echoing Innis in metaphoric language, Marshall McLuhan heard "the beat of the tribal drum" in radio (McLuhan 1965: 298). McLuhan, along with the cultural anthropologist, Edmund Carpenter, expanded on Innis' notion of space- and time-bias to discuss the role of the senses in gathering information. Societies that were oral-biased and time-biased inhabited "auditory" or "acoustic" space. Societies that were literate and space-biased inhabited "visual space."

Auditory space has no favoured focus. It's a sphere without fixed boundaries, space made by the thing itself, not space containing the thing...The eye focuses, pinpoints, abstracts, locating each object in physical space, against a background;

the ear, however, favours sound from any direction¹³
(Carpenter 1973: 35).

Acoustic space is multi-sensorial and inescapable. It is the surrounding environment as a whole and includes as a single process of continuity the past, present and future of a given society. Visual space, on the other hand, relies primarily on information gathered by the eye (reading). It is focused on the present, and represents all events as a linear chronology outside of any context. Although McLuhan and Carpenter's exploration of acoustic and visual space represents an idealized, somewhat romantic, version of time-biased oral/aural culture, it also offers support to Innis' communication theory.

Different cultures perceive the world differently, and are organized accordingly. Carpenter applied the notion of acoustic space to his experience and interpretation of Inuit life in Canada's north. Other anthropologists such as Dorothy Lee (Carpenter and McLuhan, ed. 1960: 136-155) and Sigfried Giedion (Ibid.: 71-90), also opened Innis' theory to the study of society as a whole rather than limiting it to the history of Western civilization. Communications theorists have used Innis' theory in looking at the relationship between development and communications. One such example, which is pertinent to the development of the information highway in Canada's north can be found in the work of Gail Valaskakis (1981). Valaskakis used Innis' theory as a framework for her discussion of the introduction of communications technology into Canadian Inuit communities (Valaskakis 1981: 209). Her study provides

¹³ Carpenter focuses on the ear but in fact auditory space is a multi-sensorial world where all five senses have value in acquiring information.

an important context for history of communications development in the north.

2.3 Oral Culture Meets Literate Culture in Canada's North

The Inuit, traditionally an oral-based culture, were introduced to writing in the 1800s by missionaries. Valaskakis identifies Protestant missionaries and the importance Protestantism gives to personal consultation of the Bible, as the driving force behind the development of writing systems for northern aboriginal peoples (Ibid. 213 –14). Three different writing systems appeared in the Canadian Arctic. Consequently, writing could not serve to reduce the isolation between Inuit communities,¹⁴ and instead led to increased dependency of the Inuit on interpreters and translation in dealings with the Canadian government (empire). Authority lay in the hands of those who controlled print and had access to literacy (Ibid. 217).

While missionaries perceived Christianity to be an inherent component of Westernization, they were frustrated by the lack of acculturation literacy provided. Apparently, viewing Inuit literacy in Inuktitut as a limited success, less than a dozen books were printed in Inuktitut before 1972 (Ibid. 217). As a result, literacy reinforced contact with southern agents through interpreters and bosses. Those (whether Inuit or Euro-Canadian) that were able to translate between Inuktitut and English carried authority. This situation eventually resulted in the development of two parallel Inuit groups; the traditional Inuit living close to the land

¹⁴ Inuit communities were already relatively isolated one from another due to the geographic and climatic challenges of the polar region. Writing could have been an organizing force among northern aboriginal peoples if the same writing system had developed throughout the North.

and those who acted as agents, lived in settlements and became more integrated into "Euro-Canadian" society. Literacy as an expression of Christianity created a monopoly of knowledge which effectively disrupted the course of Inuit society (Ibid. 220).

Other conditions of contact with southern interests served to disrupt Inuit society further. Two federal government policies impacted in a significant way on the social organization of northern aboriginal peoples. In the 1950s and 1960s, the federal government's forcible relocation of northern aboriginal peoples often placed northern aboriginal peoples in a situation of complete economic dependence, as game in the new territory was scarce or unfamiliar to them. At about the same time the federal government increased pressure on northern aboriginal peoples to move into settlements in order for children to attend school. This was also the time when many aboriginal children were separated from their families and sent to residential schools designed to "westernize" them. Northern aboriginal communities are still recovering from the devastating consequences of these policies.

The 1960s also brought increased resource development in the north. This in turn, affected the economic organization of Inuit society. Increasing numbers of Inuit took jobs in resource development and lived in settlements, no longer relying on hunting as the primary source of subsistence. Increased resource development also brought more southern Canadians to the north to work in resource development, government services and administration as well to operate the stores, schools and hotels that a growing market economy required. In an apparent effort to encourage southern workers to stay in the north, and in the interest of Canadian sovereignty, the federal government brought television to the

north through the "Frontier Coverage Package" in 1967 (Roth 1982: 31-31). This package was not broadcast television but rather a videotape distribution system. The arrival of video and television coincided with a growing movement for political autonomy among northern aboriginal peoples, as well as an increased readiness on the part of the federal government to negotiate land claims.¹⁵

2.4 Political Activism and Broadcast Media

The development of broadcast media in the north at first followed similar patterns to that of print media (Roth and Valaskakis 1989: 223). Controlled by Euro-Canadians, the first radio broadcast in Inuktitut occurred in 1960, although radio had been present in the north since the 1930's (Valaskakis 1981: 221). Television was first introduced in the Western Arctic in 1967 through the "Frontier Coverage Package" and then in Iqaluit (then Frobisher Bay) in 1972 (Valaskakis 1990: 17). In 1973, the Anik satellite brought broadcast television, radio and telephone services to regions which had no electronic media until then (Roth and Valaskakis 1989: 223).

By the 1970s, Inuit political organizations perceived southern television as a threat to their language and culture. Some communities refused to receive the satellite services proposed by the federal government and telecommunications companies. Aboriginal political organizations decided television was an inevitability and began a concerted lobbying effort to gain control and access to broadcast production (Ibid.: 222-226).

¹⁵ The decision of the Supreme Court of Canada in the 1973 Calder Case opened the question of aboriginal land title in Canada. The modern land claim process began shortly thereafter (Nunavut Implementation Commission 1995a: A-22).

Academic researchers in the north were sympathetic to Inuit concerns and their research tended to support Inuit calls for access to the means of production and control over distribution (Ibid.: 205). The cultural disorientation brought about by the confrontation of a time-bias culture with a space-bias culture, and the monopoly of knowledge which developed is particularly pertinent to the period that Roth defines as the introduction of communication technology to Canada's north, the period from the introduction of a writing system to 1979 (Roth 1994: 16). The 1980s marked a new era in northern communications technology.

Roth identifies five stages in the development of broadcast media in the north from "an absence in the 1968 policy to full enshrinement in the 1991 *Broadcasting Act*" (Ibid.: 262). During these two decades Native Communications Societies, academic researchers and consultants worked together to present an unorchestrated but coherent call for a northern aboriginal broadcast policy and for the legal recognition of that policy in the *Broadcasting Act*. In effect, they were fighting for the right to communicate. As government policy evolved, two government programs were established to support the activities of northern Native Communications Societies: the Native Communications Program (NCP) which ran from 1973-1990 and supported principally print media, and the Northern Native Broadcast Program (NNBAP) established in 1983 to support broadcast endeavours.

In 1981, Inuit Tapirisat of Canada (ITC), the Inuit Brotherhood, made communications a negotiable component of land claims (Valaskakis et al. 1981: 406 in Roth 1994: 226), demonstrating the extent to which northern aboriginal peoples had identified communications as an essential and basic issue of political, cultural and social autonomy. The activities of

the northern Native Communications Societies had led to a general awareness among northern residents of the power of communications technology to destroy or enhance language and culture (Standefer 1995: 3). This was already evident in the 1970s when First Peoples organizations lobbied in favour of inter-community communication links and opposed satellite television (Roth and Valaskakis 1989: 224). At that time, several Inuit-initiated government-funded two-way audio and video experiments were carried out. These experiments took place from 1976 to 1981 and led to the training of audio and video professionals, and the development of examples of culturally and linguistically relevant programming, as well as a skeletal communications infrastructure. The groundwork was laid for the development of the Inuit Broadcasting Corporation (IBC) and for Television Northern Canada (TVNC) as well as for seventeen other Native Communications Societies.¹⁶

Broadcast media proved to be a unifying force in the north, as opposed to literacy. Literacy, resulting as it did in three different writing systems did not increase pan-Arctic communication among northern Canadian aboriginal peoples. Broadcast media, on the other hand, worked to unite them geographically, culturally and politically. Inuit reacted to the

¹⁶ I have focussed on the IBC and TVNC because they have both played significant roles in initiating debate about the information highway in the North. The other Native Communications Societies are: Aboriginal Multi-Media Society of Alberta, Indian News media, Inuvialuit Communications, James Bay Cree Communications Society, Missinipi Broadcasting, Native Communications Inc., Native Communications Society of the Western NWT, Native Communications Society of Nova Scotia, Native Communications Society of British Columbia, Native Communications Society (Northern Broadcasting), Northern Native Broadcasting Yukon, OkalaKatiget Society, Saskatchewan Native Communications, Société de communication Atikamekw-Montagnaise, Taqramiut Nipingat Incorporated, WaWaTay Native Communications, Ye-Sa-To Native Communications (Lougheed and Associates. *Report on the Native Communications Program and the Northern Native Broadcast Access Program*. Prepared for Program Evaluation Directorate Department of the Secretary of State. September 1986: 3-3).

arrival of television rapidly and coherently by seeking to avoid the development of yet another monopoly of knowledge, and by lobbying for access to the means of production for all northern aboriginal communities. In this way, broadcast media could be used to retain, or rather regain, some of the cultural and political autonomy that had been lost to the Inuit through contact with Euro-Canadians.

The Inuit desire for control of broadcast media reflects many of the concerns expressed by the Non-Aligned Nations in the communication debates at UNESCO described in the next section of this chapter. These debates provided a forum for debate on the international "free-flow of information," which over the past twenty years, has grown into the concept of the right to communicate. This is a concept that has opened an international discussion on the notion of "monopoly of knowledge" and that asks the question: who should control, produce and distribute information? The fact that the Inuit identified the training of broadcast technicians and the installation of a skeletal broadcast system as key to gaining control of broadcast media demonstrates an essential tenet of the right to communicate -- access to the means of production. While the right to communicate has been established as a basic human right in various documents published by UNESCO, no single recognized definition exists. Understanding of the concept of the right to communicate emerges in studying its evolution. A working definition can then be gleaned from various sources.

2.5 Rebounding from Culture Shock: the Right to Communicate

The evolution of the concept of the right to communicate can be traced back to the early development of the concepts of liberty, human rights and

freedom of expression during the Age of Enlightenment, the French and American Revolutions and other events in the 17th and 18th centuries. More recently, "freedom of information" has been adopted as an essential element of the mandate of the United Nations (UN):

...freedom of information is a fundamental human right and is the touchstone of all the freedoms to which the United Nations is consecrated (General Assembly Res. 59(1) UN 1946).

This resolution was enshrined in Article 19 of the 1948 Universal Declaration of Human Rights (UDHR):

Everyone has the right to freedom of opinion and expression; this right includes freedom to hold opinions without interference and to seek, receive and impart information and ideas through any media and regardless of frontiers."
(General Assembly UDHR Art. 19 UN 1948).

The terminology of Article 19 suggests that the transfer of information is a two-way process: one can both "receive" and "impart information." This represents a crucial step in the development of the concept of the right to communicate as it recognizes not only the right to have access to information but also the right to produce and distribute information; however, the Declaration of Human Rights focussed on the content of communication rather than the process of communication (Fisher 1982: 8). Discussion around this topic was addressed in terms of "information" as a product or commodity to be moved from one country to another, reflecting the transportation model of communications, still very commonly held in the late 1940s.

At the same time that the UN was recognizing the importance of "information," many developing countries, especially those in Africa and Asia, were making the transition from a colonial to a post-colonial government. In the 1950s these countries also began to seek

cooperation among themselves (Hamelink 1983: 125), leading to the establishment of the Non-Aligned Movement in 1955.

Membership in this movement was expanded in the 1960s to include Latin American countries. As early as 1955, the issues of communications and culture were given high priority (Roach 1990: 304).

Throughout the 1960s, the Non-Aligned Movement and other developing nations lobbied for a rebalancing of the world information flow calling for a New International Information Order (NIIO). This movement coincided with a shift in development and communication theory that began to focus more closely on the process of communication rather than the simple exchange of information. Developing nations were anxious to take an active role in the communications industry; however, they expressed concern that they could not compete on a cost-effective basis with the United States which floods the market with economically priced products.¹⁷ There were also calls to share the available bandwidth and satellite space, more equitably (Ibid.: 283-284). The notions of "freedom of information" and "free flow of information," were perceived to guarantee a one-way flow of information from wealthy Western countries to developing nations.

In 1969, Jean D'Arcy published an article in the European Broadcast Review that recognized the need for new terms and definitions to discuss the international flow of information:

¹⁷ The United States is able to distribute programming at a low price on the international market, having already amortized production costs in its large domestic market.

The time will come when the Universal Declaration of Human Rights will have to encompass a more extensive right than man's right to information first laid down twenty-one years ago in Article 19. This is the right of man to communicate (D'Arcy 1969: 1).

This statement is generally recognized as the first expression of the right to communicate (Harms 1977: 196-197; Fisher 1982: 8). Although a member of the United Nations staff,¹⁸ D'Arcy's initiative received a weak response as many already engaged in the information discussions were reluctant to introduce a new concept, fearing it would lengthen the debate rather than resolve it (Fisher 1982: 13).

In 1974, UNESCO (which took over the communications dossier from the UN in the 1960s) moved closer to recognizing the right to communicate through acceptance by the UNESCO General Conference of the concept of a "free and balanced flow of information" (Hamelink 1994: 294). This concept was an attempt both to recognize the demands of the Non-aligned Movement and to maintain UNESCO's commitment to the notion of "free flow of information."

At about the same time, the Non-aligned Movement began to set out the principles for a New International Economic Order (NIEO) to address the economic disparity between the northern and southern hemispheres. The NIEO stressed self-reliance and equality as opposed to the traditional approach to development of integrating developing countries into the existing international system. In 1976, the New International Information Order was renamed the New World Information and Communication Order (NWICO) and included as an integral component of

¹⁸ Jean D'Arcy was Director of the Radio and Visual Services in the UN's Office of Public Information in New York at that time (Fisher 1982: 13).

the successful realization of a NIEO (Ibid. 1983: 88). Many Western countries saw a threat to capitalism in this call for a recognition of the close tie between economic issues and communications (Roach 1990: 283-4).

A series of contentious communications debates ensued around the NWICO at UNESCO. The United States, in particular, reacted negatively to the arguments for imposed quotas on foreign programming. It also protested what it perceived to be a call for increased government control of the media, for example, through UNESCO's support for the protection of journalists through licensing (Ibid.: 284). The international communications policy of the United States government is based on the view that more information is better and that the way to redress the communications imbalance is to help developing nations take a more active role within the global communications industry rather than to limit the existing flow of information (Ibid.: 287).¹⁹ This policy does not take into account the interdependence between economics, communications and culture.²⁰ Attempts to share resources of developed countries through technology transfers to developing countries have generally been limited to end products rather production facilities and resulted in increased economic and information dependence (Hamelink 1994: 198).

¹⁹ Quotas to limit foreign programming on television in the United Kingdom and France have existed for some time; however, the 1989 decision of the European Community to develop regulations stipulating that 50% of air time must carry domestic programming provoked the US Trade Representative to threaten retaliation through the GATT (Roach 1990: 292).

²⁰ In the 1970s and 1980s academics and researchers in the field of development communications, particularly some in South America began to recognize the connection between economics and culture. They suggested new ideas about the role media and communications could play in development and cultural independence (Beltran 1976: 235-8; Katz 1979: 68, 78-80).

In 1985, the United States made good on a threat delivered in 1978 and withdrew from UNESCO (Roach 1990: 284). In 1986, the United Kingdom also withdrew in support of the American action. Despite UNESCO's attempts to woo the American Government, President Reagan delivered a speech in 1987 to the United Nations General Assembly warning of the dangers of curtailing the global flow of information. UNESCO played the role of mediator throughout the debate agreeing that, on the one hand, the balance must be redressed, but that, on the other hand, this does not necessarily imply placing restrictions on the current information industry (Ibid.: 283-9). The 1987 speech by Reagan, though, along with the election of Frederico Mayor of Spain as Director General, brought a shift in UNESCO policy with regards to the NWICO. UNESCO essentially reversed its support of the NWICO (Ibid.: 286-7) and in the 1990s the right to communicate has virtually disappeared from UNESCO's discussions (Hamelink 1994: 298).

2.5.i The MacBride Commission: Recognizing the Right to Communicate

In 1978, many years prior to UNESCO's reversal on the question of the NWICO, a series of special UNESCO meetings on the subject of communications culminated in the establishment of the International Commission for the Study of Communication Problems (the MacBride Commission). The MacBride Commission implemented a series of round tables about international communications issues. In particular, the concept of the right to communicate was addressed by the commission and continues to be an important issue of discussion at the MacBride Round

Tables²¹. Just ten years after D'Arcy first discussed the notion of the right to communicate, the MacBride Commission produced the following statement in its final report.

Communication, nowadays, is a matter of human rights. But it is increasingly interpreted as the right to communicate, going beyond the right to receive communication or to be given information. Communication is thus seen as a two-way process, in which the partners -- individual and collective -- carry on a democratic and balanced dialogue."(MacBride 1980: 172-173)

The essence of the concept of the right to communicate is clear -- it involves two-way communication. As a key prerequisite to democracy, the right to communicate respects both the rights of the individual and those of society as a whole. All communities and individuals have the right to be heard and seen, or not. Hamelink discusses this in terms of interdependence, sovereignty and self-reliance:

...an interdependent international system requires states to develop self-reliantly, which necessitates sovereign control of resources, including information (Hamelink 1983: 99).

Similarly, Jay Herringer, in his examination of northern aboriginal broadcast rights, uses the terminology of "self-determination" (Herringer 1989: 46-54). The notions of sovereignty, self-reliance or self-determination that are essential elements of the NIEO and the NWICO also form the cornerstone of the definition of the right to communicate. The relationship between communications and self-determination is explored below as an element of the definition of the right to communicate.

²¹ In the Report published by the Commission, Sean MacBride suggested that a series of annual Round Tables be held for a period of five years following publication of the report. The Round Tables are ongoing. The right to communicate has continued to figure in declarations by the MacBride Round Table (Hamelink 1994: 298).

2.5.ii A Working Definition of the Right to Communicate

A universal right to communicate must be stated in terms which are acceptable to all the various cultures and languages of the world while remaining open to rapid changes in communications technology.

Although there are some who argue that the right to communicate is so basic to human existence that it cannot and should not be a legislated right, the focus of the debate is primarily on how much to include in the definition (Fisher 1982: 18). How flexible should the right to communicate be? The MacBride Report, considered to be "the most substantial examination of the whole field of communications problems to have been published in recent years" (Ibid.: 18), outlines several rights and freedoms as elements of the concept of the right to communicate including:

- a) the right to be informed;
 - b) the right to inform;
 - c) the right to privacy; and,
 - d) the right to participate in public communication
- (MacBride 1980: paragraph 54 265).

This demonstrates a clear shift in terminology from earlier United Nations statements. The question is no longer about 'freedoms' -- it is about 'rights'.

The semantics are important. As Jay Herringer points out, "right," "freedom" and "liberty" appear interchangeably in many Western documents; however, the concept of "'Right' implies obligations. 'Freedom' and 'Liberty' imply action without restraint" (Herringer 1989: 28). A right suggests responsibilities, obligations and limitations on the part of the individual, the collective, the government, private and public institutions (Ibid.: 32).

International jurists support a hierarchical approach to defining the right to communicate which would place the right to communicate among the primary human rights along with the right to life, to religious belief and to free government. The secondary freedoms and rights which encompass the right to communicate would then be subject to certain obligations and limitations (Fisher 1982: 22).

Herringer traces the evolution of the concept of the right to communicate in terms of the right to self-determination as well as minority rights to culture, language and religion (Ibid.: 46-54). In defining the right to communicate, he identifies three main characteristics of communications as basic to an understanding of the concept of the right to communicate. Communications: "serve human needs"; reflect a "two-way flow of information, attitudes and ideas"; and, involve "access to the means, processes and technologies of communication" (Ibid.: 72).

Ever since humans first marked a meaning in the earth with a stick, communications has been mediated through technology.²² Innis' theory of communication bias suggests that access to communications technology affects cultural organization and expression through a monopoly of knowledge. Valaskakis provides a concrete example of this theory in her analysis of the introduction of writing to Canadian Inuit communities. The NWICO movement and the concept of a right to communicate represent

²² As seen earlier this chapter, Ian Angus argues that even speech is a sort of technology applied to language (Angus 1998: 21). I find that it can be useful to differentiate between medium and technology. For example, e-mail is a written medium that is made accessible through computer network technology; while a handwritten note is a written medium made accessible through the technology of paper and pen.

international efforts to address the question of access to communications technology.

In view of this, a significant component of the concept of the right to communicate is guaranteeing access not just to electricity and a radio, television, telephone or computer but also access to the necessary training, equipment and facilities so that a given society may produce (impart) as well as watch and listen to (receive) information. In Canada, the responsibility to ensure equitable access to communications technology has traditionally been assumed (primarily) by the federal government.²³

2.6 Building a Nation: Canadian Geography, the Public Service Tradition and the Right to Communicate

Faced with the challenge of unifying a small, scattered population spread over a large and diverse country, Canadian governments have traditionally sought to reinforce Canadian sovereignty and culture through transportation and communications infrastructures. Maurice Charland calls this technological nationalism, "an ideology that ascribes to technology the capacity to create a nation by enhancing communications" (Charland 1986: 197). As a result, Canada has long recognized the importance of linking its diverse regions through communications technology and ensuring that remote and rural regions have access to the same basic communications services as the urban regions. The geography of Canada has contributed to the Canadian government's awareness of the role of communications as an organizing force in society, and this has been

²³ Development of the telephone system was taken over by the prairie provinces to ensure telephone access to rural residents, as Bell Canada, the monopoly national company favoured lucrative urban markets (Cowan Buchwald 1997: 166).

expressed through legislation as well as through programs and funding which support communications activities in a specific region.

The Canadian communications industry is regulated by the Canadian Radio-Television and Telecommunications Commission (CRTC), an arms-length administrative tribunal.²⁴ The two key pieces of legislation which govern the Canadian communications industry are the *Telecommunications Act* of 1993 and the *Broadcast Act* of 1991. Both acts are based on the concepts of "universal service,"²⁵ "access" and "affordability." The *Telecommunications Act* states that:

... one of Canada's telecommunications policy objectives is to render reliable and affordable telecommunications services of high quality accessible to Canadians in both urban and rural areas in all regions of Canada (*Telecommunications Act* 1993: section 7b).

The *Broadcasting Act* also upholds the principle of universal service in the following passage:

a range of broadcasting services in French and English shall be extended to all Canadians as resources become available" (*Broadcasting Act* 1991: section 3(k)).²⁶

Although the rejoinder regarding the availability of resources qualifies to some extent the government's responsibilities, the provisions of the *Broadcasting Act*, imply that broadcasting service in a variety of forms

²⁴ Although the CRTC is in a position to regulate the information highway, the commissioners regularly ask themselves whether they are the proper entity to assume that responsibility.

²⁵ For a history and examination of the notion of "universal service" in Canadian broadcasting and telecommunications see (Cowan-Buchwald 1997: 161-193)

²⁶ The linguistic and cultural diversity of Canada is also recognized in the *Broadcasting Act* with provisions for programming to reflect the multicultural and multiracial nature of Canadian society as well as the "special place" Aboriginal peoples have in Canadian society (*B.A.* 1991: section 3(d)(iii)).

and languages should be made available to all Canadians; and that government funds should be used for those ends.

Federal government support for universal service and affordable access to telecommunications as expressed in current legislation, reflects the Canadian public service tradition that incorporates both private and public interests. Within the telecommunications industry the following criteria are elements of the public service tradition.

Activities:

- a) that are of a general interest to all citizens;
- b) for which resources are limited;
- c) that pertain to Canadian unity and sovereignty and cultural identity;
- d) that involve the protection of the right to information and for which the state deems it is necessary to intervene in order to ensure that all citizens have access at affordable cost to a particular service (Tremblay 1986: 77-78).

The Canadian government's policy of universal service and affordable access is intrinsic to its support of the right to communicate. Evidence of Canadian government policy support of the concept of the right to communicate appears in a 1977 publication *Instant World*:²⁷

The rights to hear and be heard, to inform and to be informed, together may be regarded as the essential components of a 'right to communicate'...The realization of the 'right to communicate' is a desirable objective for a democratic society, so that each individual may know he is entitled to be informed and to be heard, regardless of where he may live or work or travel in his own country" (Richstad, Harms & Kie 1977: 115).

²⁷ Published by the CRTC following a series of studies on communications led by Henry Hindley, *Instant World* has been identified as "probably the first major examination of the parameters of the right to communicate" (Richstad, Harms & Kie 1977: 115).

Examples of the federal government's concern with access to telecommunications services are also suggested in the regulation of telephone services early this century. A 1902 amendment to the *Railway Act* required Bell Canada, the then national monopoly telephone company, to supply telephone service to buildings less than two hundred feet from a public thoroughfare that had a telephone line. This legislation was designed to force Bell to offer service to rural and remote communities (Cowan Buchwald 1997: 166).

The concern with reaching rural and remote populations is crucial to an understanding of the development of the Canadian telecommunications systems and its role in Canadian society. Iris Marion Young proposes a theory of distributive justice that is a useful for examining how the federal government works to ensure that all regions of Canada have access to similar telecommunications and broadcast systems.

2.7 Distributive Justice: Upholding the Right to Communicate for All Sectors of Society

Federal government funding of northern aboriginal peoples broadcast media was described earlier in this chapter. This funding for television programming produced and distributed by northern aboriginal peoples is an example of the distributive justice suggested by Young. In a traditional or assimilationist approach to equality, there is a basic assumption that all individuals are the same, thus, everyone should and would want to share the same values and goals as the dominant cultural group (Young 1990: 158). In contrast, Young works from the basic assumption that all

individuals are different and that the first step to achieving social equality is to recognize and accept difference (Ibid.: 157). Difference is expressed collectively through culture, gender, religion and economic circumstance. Rather than striving for social equality with its underlying assumption of sameness, Young proposes to strive for social justice. She advocates distributive justice which may entail special treatment of some minority groups within a population in order to attain social justice (Ibid.: 158). Young's theory of distributive justice recalls the arguments advanced by the Non-Aligned Nations calling for a rebalancing of the international flow of information. The NWICO is based on the recognition that special "rules" are needed in order for the economically disadvantaged developing countries to take an active and equitable role in the international flow of communications.

Distributive justice has been applied to the Canadian broadcast and telecommunications industry from the outset. Following the logic of technological nationalism, telecommunications have traditionally been used to ensure cohesiveness across the rural/urban and English-speaking/French-speaking sectors of Canadian society. It has generally taken the form of subsidies from the federal government or federal legislation and regulation of the industry through the CRTC. Described earlier in this chapter, the brief history of the development of broadcast media among northern aboriginal peoples provides a concrete example of distributive justice within the context of Canadian communications policy. The federal government recognized a need to offer financial support and to address through policy and legislation the role of aboriginal peoples in the Canadian broadcast environment.

It has taken approximately 30 years for aboriginal peoples to be recognized in Canada's *Broadcasting Act*. Although federal government policy supports the concept of a right to communicate and principles of social justice, Roth has shown that government support in the form of financial grants and policy documents has been dependent on the ability of northern aboriginal peoples to lobby for that support.

By policy-ing the regulators and the policy-makers, i.e. by surveying the players, policing the airwaves, identifying loopholes in existing policies over the years and building alignments within the system, First Peoples were able to locate themselves in a political position to successfully negotiate collective 'air rights' " (Roth 1994: 361).

The federal government sets national policy through documents, programs and funding. Roth identifies policy documents as "crystallized traces of strategies and decisions made by government representatives in response to cumulative arguments and evidence" (Ibid.: 204). It is for this reason that recognition of aboriginal peoples "special place" in the Canadian media landscape in the 1991 *Broadcasting Act* is so significant. Enshrinement of aboriginal broadcast rights provides a legislated guarantee of the Canadian government's commitment to the collection of *ad hoc*/post hoc policies that preceded recognition in the *Broadcasting Act* (Ibid.: 356-363). The lobbying process that led to enshrinement was an expression of northern aboriginal peoples' political savvy.

The nature of the state apparatus is such that it is a dynamic force both within society and unto itself. Rianne Mahon describes the state "as a relation, an expression of the antagonistic relations among classes and factions" (Mahon 1977: 169). The compromises reached and expressed as public policy represent what the state calls "national interest" but which

more accurately reflect the "general political interests" of the power bloc (these objectives may or may not coincide).

In negotiating the compromises which constitute public policy, that branch is empowered to limit the concessions made to other social forces through their representatives in the state. The core interests around which the unity of the power bloc is constructed (the long-term interests of the power bloc) are thereby expressed in public policy and lend to the activity of the state a functional, effective, but 'contradictory' unity" (Ibid.: 171).

Special interests do influence public policy but they do so within the state administration. This can be greatly assisted if the special interest can find a sympathetic ear within the state apparatus. Northern aboriginal broadcasting interests did so with the CRTC which has long been supportive of aboriginal initiatives in broadcasting (Roth 1994: 207-210). Key to the success of special interest groups influencing public policy is that their objectives coincide at least in part with those of the power bloc. As suggested above, the development of broadcast media in the north demonstrates the power and limitations of effective lobbying.

In the 1970s the northern Native Communications Societies lobbied for funding to support aboriginal broadcast endeavours. In the 1980s communications was made negotiable under land claims (Valaskakis et al. 1981: 406; Roth 1994: 226) and northern aboriginal peoples lobbied for increased control of broadcast media. This resulted in the enshrinement of aboriginal broadcast rights in the 1991 *Broadcasting Act*, in the creation of Television Northern Canada (TVNC) in 1992 and finally, in the licensing of APTN in 1999. The financial support provided by the federal government to Native Communications Societies appears to be leading to a gradual rebalancing of the communication flow within Canada (despite government cutbacks in that funding). On February 22, 1999, the CRTC

granted a broadcasting licence to the Aboriginal Peoples Television network (APTN) (CRTC Decision 97-42). While it is in part the increase in available space on the broadcast spectrum afforded by the digitization of broadcast signals that has opened the way for an aboriginal broadcast network, the license was awarded for carriage on basic cable service. Licensing the APTN as a part of basic cable service at last gives northern and southern aboriginal peoples, a voice in the southern Canadian media landscape. The flow of information will be reversed, at least on one channel. As a result both southern and northern aboriginal peoples will have a place to tell their own stories in a medium that they own and operate, and which, at the same time, is a fixture of mainstream Canadian media.

In the mid-1990s northern aboriginal organizations began to fight to have their voices heard in a new medium – the information highway. This development focussed attention on the telephone, a different communications technology and one which had been less successfully lobbied in the past.

2.8 Northern Telephone Service

Mirroring the introduction of print and broadcast media, the implementation of a northern telephone system has been subject to the imperatives of southern interests.

...expansion was geared to meet government and industry interests; Inuit needs were generally neither recognized nor addressed (Koebberling 1990: 19).

In the western Arctic, telephone service was primarily driven by the development of mineral and petroleum resources. In 1947, the Royal Canadian Corps of Signals' (RCCS) radio telegraph system was handed over

to the federal Department of Transport (DOT) and integrated into the DOT system by 1957. In 1958, DOT's facilities were transferred to the Canadian National Telegraph (CNT), a Crown subsidiary of Canadian National Railways. Operating on a joint military-commercial basis, the CNT developed a telecommunications infrastructure using radio-telephones to link larger economic centres north to south. In 1978, CNT reorganized to set up a wholly-owned subsidiary, NorthwesTel. (Ibid.: 17-18).

NorthwesTel²⁸ serves the Yukon, Northwest Territories, northern British Columbia and. Its subscriber base is approximately 110,000 people over four million square kilometres (NorthwesTel [Home Page] January 21, 1999). NorthwesTel has 86 000 network lines to support its subscriber base (e-mail correspondence, Anne Grainger: March 25, 1999).

Telephone service in the eastern Arctic was also driven by economic, strategic, administrative and geographic considerations (Koeberling 1990: 17). The lack of resource development in the region provided less incentive for federal government involvement. Consequently, DOT handed the telephone service over to Bell Canada. The federal government encouraged development of the telephone system through a subsidy program. This led to a radio-telephone system linking all of the eastern Arctic including northern Quebec and Labrador (Ibid.: 18-19). Bell now has 14 exchanges north of the 60th parallel. Each exchange has less than 1500 customers (E-mail correspondence, Christine Roberts: February 1, 1999).

Although the two systems were funded differently, the type and quality of service offered in the eastern and western Arctic was similar. In

²⁸ Bell Canada Enterprises is a majority owner of NorthwesTel.

both cases, better service was made available in larger communities where there was more economic activity due to resource development or administrative offices (Koebberling 1990: 18-19). Aboriginal peoples across the Arctic were frustrated by: a) the lack of telephone service; b) the poor quality of that service when it was available; and c) the fact that their needs were not taken account in terms of selecting which communities were to receive service (Ibid.: 19). In 1970, they had an opportunity to express those needs at a northern communications conference held in Yellowknife.

importantly, Inuit emphasized their need for reliable, inexpensive, interactive services and facilities suited to the harsh conditions of the Arctic, on a seven-day, twenty-four-hour a day basis (Ibid.: 19).

Again using the high-profile Anik-B projects as leverage, aboriginal groups refused to participate in the satellite experiments unless Arctic telephone services were improved (Ibid.: 20). Finally, in 1977 (four years after setting up the first fund to support Native Communications Societies), the federal government set up the Northern Communication Access Program (NCAP). Through this program, the federal government supplied approximately \$8 million over 10 years to the Canadian National Telegraph (CNT)²⁹ and Bell. The money was used to defray capital costs in upgrading telephone systems to communities with over 100 residents. The upgrades were completed in 1985.

While the NCAP served to ensure that a basic telecommunications infrastructure was made available throughout the Arctic, it did not guarantee that service improvements, nor the average monthly telephone

²⁹ In 1978 CNT reorganized and created the self-sufficient subsidiary, NorthwesTel, to serve its Northern market.

bill for northern residents would match that of southern Canadians (Ibid.: 20). This left northern aboriginal peoples with an increasingly ineffective telephone system (Inuit Broadcasting Corporation 1993: 32-35).

The lobby for improved northern telephone services in the 1970s and 1980s was apparently less successful than that of the lobby for broadcast rights. This situation can be attributed to three factors.

- 1) The Canadian telephone system is controlled through large private publicly-run corporations, and despite provisions for public service, is largely market driven as evidenced by the pattern of infrastructure development (Koebberling 1990: 27).
- 2) Federal government funding was supplied to the telephone companies (Ibid.: 28) rather than to aboriginal organizations (as in the case of broadcast media), so the identified priorities did not necessarily match those of northern aboriginal peoples, instead, priorities were set following the imperatives of the market economy.
- 3) The investment required to maintain and improve telephone service seemed to outweigh the necessity for that service (from the perspective of government and the telephone companies) (Ibid.: 28).

In contrast, the Canadian broadcasting system has a strong tradition of public broadcasting with a mandate to both preserve Canadian culture and produce culturally relevant programming. Financial support of northern Native Communications Societies was closely tied to the federal government's objectives of defending Canadian sovereignty in the north through the establishment of a broadcasting presence (Roth 1982: 31-32). In the case of broadcast media, the goals of aboriginal peoples coincided more closely with existing federal government policy objectives. The cost involved in bringing the northern telephone system to meet southern telephone service standards does not appear to have been a high priority in terms of federal government policy objectives in the 1970s and 1980s.

The movement towards active participation of aboriginal peoples in the public sphere of Canadian media, evidenced in the successful recognition of aboriginal peoples in broadcast policy, is an expression of, and at the same time, is dependent on the recognition of the right to communicate.

Herringer demonstrates that Canadian communications policy in the late 1980's was:

moving in the general direction of compliance with the international legal standard for aboriginal minority guarantees to culture and language through the communications systems involved in broadcasting (Herringer 1989: 278).

The issue of the right to communicate has played a role in the development of democracy and is tied to notions of self-determination as well as cultural and linguistic survival (Herringer 1989: 46-54). The right to communicate is ever more important in light of the exponential advances in telecommunications technology since the advent of the microchip. In northern Canada this became increasingly evident in the late 1980s and early 1990s.

The issues of no guaranteed upgrades of telephone service and high telephone rates in the north gained importance in the late 1980's as telecommunications technology advanced and more and more communication for business, and government, was conducted over the telephone system, through conference calls, fax machines and e-mail. At the same time, the issue of pan-Arctic communications became increasingly important to northern aboriginal peoples as the federal government prepared to settle long-standing land claims. At this time, and into the mid-1990s, northern Canadians struggled with simple telephone and fax transmissions due to the technical limitations of the

existing system. In southern Canada, increasing numbers of Canadians were using existing telephone lines (which had been regularly upgraded to meet the demand of business and government for high-speed transmission) to send text and images in digital formats on the information highway. McLuhan's "global village" (McLuhan 1962: 31) was proving to be a technical possibility, at least for those with access to a computer, a modem and a reliable upgraded telephone service.

2.9 The Right to Communicate -- Making Room for Oral-based Cultures in the *Global Village*

The development of broadcast media in the first half of this century seemed to herald a return to a time-bias culture, yet these media incorporate many values inherent in space-bias media. McLuhan may have heard the "beat of the tribal drum" (McLuhan 1965: 298) in the radio as everyone gathered around to listen to the same program; however, the shared intimacy of verbal storytelling still made no provision for two-way communication, for public debate. For Innis, "the unstated presupposition of democratic life was the existence of a public sphere, of an oral tradition, of a public discourse as a necessary counterweight to printing" (Carey 1992: 165). Broadcast media is a space-bias technology in that it allows for distribution over large distances and is not concerned with durability. The telephone, also adapted to expansion of empire, was designed for two-way communication but favours intimate rather than public debate.

A multi-media information highway that incorporates audio, visual and print components has the potential to provide for the expanded public sphere that Innis was calling for, and that McLuhan predicted in his

"global village." McLuhan suggested that in the age of electronic media this process would be accelerated, "Electric speeds create centers everywhere. Margins cease to exist on this planet" (McLuhan 1962: 91). This statement implies that electronic media would work to eliminate the physical, economic and cultural distances that characterize the industrialized world in which a small and limited population tends to control economic resources.

...in spite of the tendency of media to extend the reaches of empire and create monopolies of knowledge that rob the public of legitimacy in the interpretation of its own experience (an idea attributed to Innis), they also have the capacity to develop at the periphery of empire and serve as vehicles of resistance, decentralizing information and, hence diffusing power (Raboy 1990: 341).

It is in the power media afford to the periphery that Innis saw hope for a renewed public sphere through broadcast media.

It has been argued in development theory that developing countries should "leapfrog" the Industrial Age and invest directly in the so-called "Information Age" or "post-industrial Age" (Tehrani 1986: 21-24).³⁰ This argument can be extended to include what George Manuel termed the Fourth World, indigenous peoples living in First World countries.³¹

The logic of leapfrog theory assumes that colonized countries or populations still reeling from the shock of the shift from an oral tradition to that of a print tradition will be uniquely placed to understand and utilize the potential of what Walter J. Ong (Ong 1977: 298-299) terms the

³⁰ Tehrani suggests caution in employing the term "Information Age" which is suggestive of a communitarian view rather than the currently emerging commodification of information (Tehrani 1986: 21) that is perhaps more aptly called the "Post-industrial Age." Gaëtan Tremblay suggests the term "Gatism" as opposed to "Fordism" (Tremblay 1998).

³¹ George Manuel used this term in his book *Fourth World* (Collier MacMillan: 1974).

"secondary orality" of electronic media. Secondary orality assumes that electronic media are a sort of virtual "acoustic space." Oral-based cultures, used to dealing with the world from the multi-sensory perspective described by Edmund Carpenter, are expected to have an inherent advantage in dealing with the multi-media world of electronic communications.

Marshall McLuhan predicted a blurring or blending of the oral and literate in the "global village." On the information highway, the written word is effectively carried at "electric" speed and becomes almost instantaneous, like the spoken word. For the moment at least, words on the information highway are rarely spoken, rather they are typed. Improvements in audio and image data transmission, including video, are advancing rapidly. There is the potential to replace the keyboard with a writing pad and/or voice recognition programs. The information highway, though, grew out of a tradition of print media and is currently a digitized expression of literate culture. The vast majority of on-line data transmission is text-based, and in English. In the 1990s, as well as having access to the necessary technology one must read and type English to participate in the "global village."

Secondary orality may provide oral-based cultures with a special perspective on the use of multi-media; however, it does not remedy an essential issue inherent in the concept of the right to communicate -- the question of access. How are developing nations that lack standardized, well-distributed electricity and telephone services and that are economically unable to compete with the onslaught of American television programming expected to invest rapidly and effectively in the new communications technologies?

Canada has achieved a remarkable 99% telephone penetration, but telephone services remain uneven, with southern urban centres receiving more efficient and more technologically advanced services. Canada's north, with its concentrated indigenous population offers a glimpse of the process involved in an oral-based society deliberating the value and usefulness of the information highway, the primary medium of the "Post-industrial Age." Even in Canada's north where a minimal telecommunications infrastructure existed in the mid-1990s and close to 70% of the population uses English as its home language (Education, Culture and Employment 1994: 28); it is not evident how the information highway will work to reorganize northern aboriginal cultures, their relationship with other northern residents, and with the whole of Canadian society. Innis' theory of a "communication bias," interacting with a particular environment to express a "monopoly of knowledge" subject to the power of "empire" is still a valid framework for examining the development of the information highway. There is a new way of communicating, but the old rules of who controls the technology, who has means to the access of production still determines the uses, and the form that the technology will take. Raymond Williams argues that:

The moment of any new technology is a moment of choice...Nothing, either way, is determined by the technology, but it is an important feature of the new systems that they offer opportunities for new cultural relationships, which the older systems could not (Williams 1983: 146-147).

New technology does not dictate what it is to be used for, rather, its use is determined by the interplay of social, political, economic and cultural factors. The collection of these factors comprises the particular

environment in which the technology is used. How those factors come together results in public policy pertaining to a particular technology.

2.10 Conclusion

In terms of the development of communications in Canada's north, the success of northern aboriginal peoples to defend their right to communicate was in part due to the federal government's willingness to listen to a remote part of Canada. As Maurice Charland argues Canadian communications policy is based on a technological nationalism to ensure telecommunications and broadcast services to all region of the country. In order to act on its recognition of the concept of the right to communicate, the Canadian federal government relied on a mechanism of distributive justice to attribute funding to the development of northern aboriginal media.

The information highway marks a new era in the history of communications technology. The information highway is, or will become, if the predictions of industry, government and most current users are correct, the basic communications technology in the very near future (Angus and McKie May 1994: 12). Jon Gerrard, then Federal Secretary of State for Science, Research and Develoment, stated in 1994 that the information highway will "transform our lives," and that:

The way we exchange information, the speed at which we do business, and the very ideas we communicate will all be dramatically affected....How we do research, how we design and manufacture products, how we do our banking, pay our taxes, learn about our world and educate our children will all be affected (Gerrard 1994: 4).

This statement emphasizes the role of communications technology in organizing society and suggests the extent to which communications

technology influences every aspect of daily life. Providing all sectors of Canadian society with access to this technology becomes an issue of the right not only to information, but of the right to communicate, a right which underlies all human activity (MacBride 1980: 14-15). Northern aboriginal organizations, well-versed in the Canadian public policy process and keenly aware of the communications needs and deficiencies of northern Canada, were quick to react to the 1993 Throne Speech announcing the federal government's intention to prepare Canada for the "Information Age."

In the next chapter, Innis' theory illustrates the importance of infrastructure in determining the form and function of the information highway. The history of the development of communications technology in the north offers a backdrop to the steps taken by northern aboriginal organizations to ensure the availability of the means to exercise their right to communicate on the information highway. Just as the information highway marks a new era in the history of communications development in the north, it appears to mark a shift in Canadian federal government policy with regards to telecommunications. This shift is evidenced in the federal government's discourse on the information highway and will be analyzed in terms of the development of a northern information highway in the next chapter.

Chapter 3

Northern Voices in National Public Policy

3.1 Introduction

In this chapter, the actions of northern aboriginal organizations to ensure that northern concerns were recognized in national information highway public policy is described. Drawing on their experience lobbying for broadcast rights northern aboriginal organizations quickly recognized the importance of public consultation and collective action. The first step was to establish the communications needs of northerners (both aboriginal and non-aboriginal). This was accomplished through a study conducted by IBC in 1993 called *Connecting the North: Defining Northern Users' Needs* (IBC needs analysis). The second step was to establish a forum for public consultation that would generate a consensual body of information regarding the communications needs of northerners. This resulted in an interactive broadcast symposium called *Connecting the North* in 1994.

At about the same time the federal government worked to establish its action plan for the information highway. In order to do so, it requested the CRTC to hold public hearings into the information highway and it set up the Information Highway Advisory Council (IHAC). In taking these steps and setting out how the CRTC and the IHAC were to explore the topic, the federal government acted to establish a particular discourse on the information highway. As noted in Chapter One, Heather Menzies' work, derivative of Harold Innis, offers a useful analysis of the debate on the information highway around two opposing visions: the market economy model (communications-as-commodity) and the public service model (communications-as-community).

In this chapter, the success of northern aboriginal organizations in having their concerns recognized in federal information highway policy is considered through a detailed examination of the corpus of information generated by the IBC needs analysis and *Connecting the North* and its recognition in federal policy documents.

3.2 Background

Among the early manifestations of the information highway in the north were experiments in distance education, and demonstrations of the potential of new telecommunications technology to facilitate communication among northern peoples within Canada as well as with southern Canada and the rest of the world. The interactive video and audio experiments of the 1970's described in Chapter 2 were the very first of these experiments. The Inuit participating in these experiments lobbied for development of a two-way audio/video system in the north (essentially video-conferencing); however, at that time, the federal government considered the interactive use of satellite connections for community and cultural development too costly for long-term funding (Roth 1994: 226). Inuit interest in video-conferencing has remained high and will be discussed below.

Throughout the late 1980s, individuals and school boards carried out pilot distance education projects. In Rankin Inlet, Bill Belsey, an educator, experimented with connecting a modem from his home to the school as early as 1986. By 1996, he had the school connected to the Internet and a state-of-the-art computer lab for his elementary students, open to use by

the general public as a Community Access Centre³² in the evening (Personal Interview, Bill Belsey: June 1, 1998). In the late 1980s, the Baffin Regional School Board was involved in a series of distant pilot projects including an electronic bulletin board called "Takuyaksat" (things you might like to see), which connected 20 schools across Baffin Island using a syllabics font (Personal Interview, Sandy McAuley: June 4, 1998). Also at this time, the Government of the Northwest Territories, "Department of Education, Employment and Culture, Information Networks" created the "North of 60" Bulletin Board which connected 11 regional centres through dedicated lines (schools in outlying regions often did not participate due to the high cost of long distance fees) (Personal Interview, Peter Crass: June 4, 1998). All three of these projects were education-driven and largely dependent on the interest, expertise and initiative of the specific individuals who implemented them.

By 1993, efforts to bring the information highway to the north began to focus around the Native Communications Societies, staffed by local aboriginal television and radio professionals who had already recognized the power of communications technology as an organizing force. Well-versed in lobbying skills, they realized that one of the first steps to putting northern concerns about the information highway on the national agenda was to establish the need for such services, as well as to demonstrate the technical feasibility and potential applications of the information highway.

³² Community Access Centres are integral to the federal government's plan to make Internet services accessible to all Canadians. They are based on international examples of Community Telecommunications Service Centres that are discussed in Chapter Four. Community Access Centres are funded by the federal government through the Community Access Program also discussed in Chapter Four.

A first meeting to open discussion on the information highway was held in Ottawa in 1993. Communications "activists" including representatives of the following aboriginal organizations were present: Gerry Gyberson, Executive Director, Television Northern Canada (TVNC); Lorraine Thomas, Acting Executive Director, Inuit Broadcasting Corporation (IBC); Ron Ryan, Inuit Tapirisat of Canada (ITC); Anne Forster, a consultant for Atii.³³ (Telephone Interview, Lorraine Thomas: May 13, 1998). As a result of this meeting, the GNWT funded the IBC needs analysis (Inuit Broadcasting Corporation 1995: 5-6).

3.3 Defining Telecommunications Needs for Northern Users

The objective of the IBC needs analysis was to apply a process-driven approach to: "Develop a distance education and communication strategy for the Canadian Arctic from the users' perspectives" (Ibid.: 12). Approximately 70 people participated in the research project between September 30 and December 15, 1993. Participants were from local service organizations, including community organizations, government departments, aboriginal organizations, co-operatives, public education groups, and private companies (Ibid.: 14). The organizations consulted were divided into the following broad categories:

- arts and culture,
- adult education,
- communication organizations,
- economic development organizations,
- health and social services,
- Kindergarten to Grade 12 education, and
- self-government organizations (Ibid.: 19).

³³ *Atii*, an Inuit word for "Let's go!" was the name of a video training program for Inuit created in the 1980s (Telephone interview, Lorraine Thomas: May 13, 1998)

The compilation of the results of the teleconference focus groups indicated the needs defined by the participants as well as the problems associated with applying technologies. The following needs were identified:

- connect individuals to individuals (artist to artist, student to student....);
- connect individuals to organizations and service providers (student to tutor, community video maker to regional office, ... caribou hunter to community harvesting operation);
- connect people within organizations and sectors (data communication for social service delivery,...members of boards,.. social service field workers for support...);
- connect northern resources (sharing of educational curriculum, sharing of vision for communication development...);
- training and support for end users (ongoing access to technology experts...continued training for doctors and nurses in medical technologies (Ibid. 18).

In examining the above list of needs, it is evident that almost all service activity in the north involves some communication with people and resources outside of the home community (Ibid.: 17). The IBC needs analysis identified five problems typical of the application of technologies by the various organizations and individuals interviewed:

- 1) Limitations of the technical communication infrastructure. (...lack of bandwidth availability, lack of telecommunications services, the cost of long distance telephony.)
- 2) Concentration of resources in southern centres.
- 3) Communication tools designed for English-speaking, print-based users.
- 4) Lack of training for end users at the community level.
- 5) Lack of potential for return on investment (Ibid.: 31).

These technical limitations served to slow the development of innovative uses of telecommunications technology in the north (Ibid.: 31). For example, northern aboriginal peoples have made considerable use of radio and television phone-in shows as a way to discuss topics on a regional basis; however, participation has been hampered by the fact that

collect-call instructions in the Northwest Territories were available in French or English only³⁴, effectively excluding unilingual Inuktitut speakers (Ibid.: 37). The use of radio and television phone-in shows is particularly important as all broad group categories identified a need for audio visual communication as well as text (Ibid.: 20-27). Self-government organizations in particular stressed the value of verbal communication (Ibid.: 27). This emphasis on the importance of verbal and preferably face-to-face communication is significant as it echoes the call by Inuit for an interactive satellite communications service in the 1970s.

Two factors stand out in the IBC needs analysis: "1) The widening of the North-South gap....2) Barriers of pan-northern development (Ibid.: 41). The historical overview of the implementation of the northern telephone service, discussed in Chapter Two, indicates that from a technical standpoint northern communications technologies have always lagged behind those of the southern urban centres. This situation is due to geographic, climactic and economic factors. Many geographic and climactic complications were overcome through the successful use of satellite communications combined with microwave towers, and in some locations, local land lines; however, economic considerations remain a problem. As discussed above in Chapter Two, this is reflective of the Canadian telecommunications system, which is essentially driven by a

³⁴ Northwestel introduced operator service in Inuktitut in 1993. Northwestel emits bills in English and Inuktitut in Nunavut and in English elsewhere (E-mail correspondence, Anne Grainger: March 25, 1999). Bell Canada indicates that it has always offered the services of an interpreter during regular office hours in Hull, Quebec. Billing is in French and English but the phone book and late payment notices are published in French, English and Inuktitut (E-mail correspondence, Lise Potvin: March 26, 1999).

market economy. Private telecommunications companies are not prepared to spend the large sums of money necessary to upgrade telephone services except in those locations where they can expect a reasonable return on their investment. Consequently, universal telephone service in Canada must be achieved through regulation and federal government subsidies, rather than private enterprise.

The results of the IBC needs analysis paint a clear picture of the communication needs, and the technical problems facing communications users in the north. The significance of the study is as follows.

- 1) It was a comprehensive pan-Arctic communications needs analysis conducted in the north by an aboriginal organization;
- 2) It was focused on open questions about the communication needs of northern residents rather than on oriented questions about the use of specific technologies (demonstrating in this manner actual telecommunications needs); and,
- 3) It demonstrated to what extent northern peoples were dependent on communications in their everyday life whether as hunters or video makers.

The IBC needs analysis demonstrated the role of telecommunications services and the need for improved services in the north and it proposed a "Northern Connection Strategy". The purpose of the strategy was to:

begin the process of bringing together infrastructure providers, government and end users...to plan the development of both a physical infrastructure and a training and support infrastructure....with communication technologies that meet their needs (Ibid.: 47).

The next step was to "go public," to confirm on a larger scale the findings of the study and to inform the general public of recent and upcoming developments in telecommunications technology. This was accomplished through *Connecting the North*, an interactive symposium on the northern

information highway broadcast on Television Northern Canada (TVNC) November 23 -25, 1994 (Ibid. 1995: 5-9).

3.4 *Connecting the North* - An Interactive Pan-Arctic Public Consultation

Connecting the North demonstrated the potential of information highway technologies to facilitate contact both among northern peoples and with the rest of the world. It served both as a technical test ground for networking technologies and as a forum for discussion. In technical terms, the symposium was a showcase of telecommunications technology available in the north in 1994, as well as an opportunity to experiment with the integration of some new technologies such as Asynchronous Transfer Mode (ATM)³⁵ and video-conferencing. The symposium linked 27 northern communities by telephone and fax with video-conference links to the four broadcast centres: Ottawa, Yellowknife, Whitehorse and Iqaluit. Video-conference presentations were made from Vancouver, Thunder Bay, St John's Newfoundland, Miramichi in New Brunswick, and north-central Australia. ATM presentations were made from Ottawa as part of a first-time technical experiment using ATM.

As a technical experiment, *Connecting the North* proved the feasibility of a pan-northern network in spite of problems due to the uneven and unreliable quality of northern telephone lines.

It's interesting that while you were talking about video conferencing and ATM transmissions, our regional groups in Kuujuaq, Salluit and Dorval were experiencing severe

³⁵ Asynchronous Transfer Mode (ATM) is a high-capacity packet switching (in bunches) technology as opposed to circuit-switching (uses a dedicated line) which allows for all information formats including: voice, data and full-motion video.

problems this afternoon with something as basic as having a conference call (Kuujuaq discussion group in Ibid.: 23).

In 1994, many communities in the north had access to 300 baud³⁶ lines only; however, even for those communities with a 2400 baud service (capability to fax), the service was unreliable as well as costly (Inuit Broadcasting Corporation 1993: 33). The situation in southern Canada was quite different. In 1993, the CANARIE backbone network provided service at 56 kilobits per second (kbs) and upgraded to T1 lines (1500 kbs) in December 1994 (Ibid. 47).³⁷ During the IBC needs analysis, NorthwTel indicated it hoped to upgrade all northern telephone lines to 56 kbs as quickly as finances permitted (Ibid.: 47). This upgrade was finally completed in May 1998 in preparation for the installation of a northern digital communications network (Personal Interview, Peter Crass: June 4, 1998).

Connecting the North brought together panels of experts from the private and public sectors, from government and from community organizations to present new technologies and to offer their particular perspective on an issue. The 27 communities which participated officially in *Connecting the North*, organized discussion groups including educators, medical personnel, RCMP officers, students and some elders (Ibid.: 57-63). The members faxed, e-mailed³⁸ or telephoned, questions and comments to the panels (Ibid.: 9-10). A total of 500 participants registered for *Connecting the North* on community panel discussions, through formal presentations and as audience/participants at the 4 broadcast sites. The

³⁶ 300 baud refers to the bandwidth available. The larger the bandwidth, the speedier the transmission.

³⁷ Kilobits per second refer to the speed of transmission. 56 kbs is faster than 2400 baud.

³⁸ Only a half dozen comments were received by e-mail as only a very few communities had access to e-mail in 1994.

event was broadcast live to the 96 communities that regularly receive TVNC. In addition, several national and international, educational, governmental and community organizations requested TVNC satellite coordinates to watch the broadcast as unregistered participants (Ibid.: 10). Finally, *Connecting the North* was rebroadcast 4 times on the Parliamentary Channel in the year following the event. IBC estimates that several thousand people watched part or all of the original broadcast (Ibid.: 10).

The following topics were addressed in *Connecting the North*: distance education and training; health and social services; justice; public administration and self-government; and, economic development. In examining the agenda for each of the three days, it is clear that education and training needs were a significant impetus for the development of the information highway in the north.

The first day of *Connecting the North* addressed education and training specifically. Several projects initiated in the north or conducted with southern partners were demonstrated, including "North of 60" and "Takuyaksat," discussed earlier in this chapter. Other initiatives included the Master's of Business Administration (MBA) Program offered by Queen's University in partnership with NorthwTel to residents in Yellowknife, Whitehorse and nine other Canadian cities. Greg Walsh of the Arctic College discussed plans for the College to offer 20% of its courses to residents outside of Iqaluit by 1999.

On the second day, education and training remained a running theme through discussions on health and social services, and justice, public administration and self-government. Applications for telemedicine were discussed with emphasis on using the information highway for professional

development of Territorial Health and Social Services staff. The RCMP also indicated an interest in professional development as they had already implemented a distance training program using broadcast television.

On the third day of discussion at *Connecting the North*, the importance of education and training was again noted with an added emphasis on the importance of children and youth. The benefits of information highway technologies to specific businesses were discussed and demonstrated. Several groups and individuals including: Bill Lyall of Arctic Cooperatives Limited (ACL); the Northern Native Broadcasting Society; John Amagoalik (Chief Commissioner, Nunavut Implementation Commission); Rosemairie Kuptana (President Inuit Tapirisat Canada) and Wolfgang Fink (Yukon Territorial Government), all called on northerners to work together to build a northern information highway. Other major stakeholders such as NorthwesTel and the federal government indicated their interest in learning more about northern peoples telecommunications needs and their willingness to cooperate in supporting the installation of a northern information highway infrastructure.

Two significant, though at first glance opposing, suggestions emerged during day three: the need to pool resources through partnership and a call for government to fund the necessary upgrades to the telecommunications infrastructure (Ibid.: 43). These suggestions seem to both refute and reflect the current state of flux in Canadian telecommunications policy. While the call for government funding reflects the government's responsibility to provide equitable communications services throughout the country as discussed in Chapter Two, it salutes a more recent government discourse that insists on the importance of partnership between government, community and private enterprise.

These two suggestions seem to find their interpretation in the GNWT's decision to develop the information highway infrastructure as an "anchor tenant;" however, other interpretations were possible. Day Two of *Connecting the North* provided a different model for developing a communications network.

3.4.i Tanami Network: A Communications-as-Community Participation Model

The video-conference with the Tanami Network attracted much discussion and interest among the discussion groups participating in *Connecting the North* (Ibid.: 46). The Tanami Network Trust is a media association which has developed an Aborigine-owned and controlled video-conference satellite-based network with the Warlpiri people of central Australia (Meadows 1995: 201). Following the failure of a conventional telecommunications system offered by the major carrier Telecom Australia, the Warlpiri developed a satellite system linking four Tanami communities separated by hundreds of kilometres of desert. The Tanami Network was developed based on three criteria: "Aboriginal control; the need for a mixed package of media services (computer links, fax, telephone, local video production, broadcasting); and a wide application of technology to achieve cost-effectiveness" (Ibid.: 201). The Tanami Network uses video-conferencing to facilitate social networking and ceremonial activity. It is also used for meetings, negotiating sales of art, handicrafts and co-production projects as well as a technical network for community broadcasting. The cost of the network is offset through the delivery of education and training programs, medical diagnostic services, and coordination with various businesses and agencies in the region (Ibid.:

201-202). Michael Meadows identifies local control as the key success element in the Tanami Network. The owners of the network control the assets, and represent the cultural and social perspective of the communities involved. Four directors, each representing one of the communities in the Network, act as a liaison between workers and owners to maintain a fair cultural balance in the activities undertaken by the Network (Ibid.: 202).

The special appeal of the Tanami Network was not only the idea of an aboriginal-owned and operated network but by one that '...was first created to enhance and foster the strength of family and community." (Nain, Labrador Discussion Group in Inuit Broadcasting Corporation 1995: 46). Other discussion groups pointed to Television Northern Canada as a successful model for a northern-owned and operated communications network in which the Native Communications Societies supplying the programming are also active members of the Network (Ibid.: 46). It is significant that discussion groups expressed interest in broadcast networks as useful, pertinent models for a northern network. In both cases, the networks provided a model for local control through aboriginal representation on the board of directors and through programming. The Inuit led two-way video experiments of the late 1970s and the IBC needs analysis of 1993 attest to the importance northern aboriginal peoples place on verbal, face-to-face communications to maintain and nurture, social contact as an expression of their culture. *Connecting the North* was a forum for the expression of long-term goals and aspirations to use communications technology to overcome distance in a culturally relevant manner, and the Tanami Network, seemed to exemplify some of those goals and aspirations.

3.4.ii Defining Access: A Key Element to Aboriginal Control of the Development of the Information Highway

The content of the discussions at *Connecting the North* generated a body of evidence that demonstrated the need for a northern information highway and set out the principles key to its successful development. The participation of the discussion groups played an important role in directing discussions and formulating that body of evidence. The six broad areas of concern identified by the discussion groups were:

- a) access;
- b) culture and language;
- c) training;
- d) accountability;
- e) northern participation in research and development; and,
- f) funding (Ibid.: 22).

These six issues serve to define the main policy objectives set out by northern aboriginal organizations in documenting the debate around the development of a northern information highway. They also offer a useful means to track the success of northern aboriginal organizations in gaining recognition of northern concerns in national public policy with regards to the information highway. These topics will be examined again later in this chapter with regards to the recommendations by the Information Highway Advisory Council and the federal government's action plan as well as in Chapter Four with regards to the implementation of the DCN.

a) Access

The development of the information highway in the north served to focus attention on the generally poor level of telephone service available in the north in the mid-1990s in terms of two notions critical to Canadian communications policy: "affordable access" and "universal service." As a

basic characteristic of communications as defined by Herringer, access is an essential tenet of the right to communicate. Northern aboriginal peoples are keenly aware of the importance access plays in attaining control of media and communications. The *Connecting the North* Final Report identifies 4 types of access:

- i) **Technical access** - the physical presence of adequate telecommunications systems to provide for information highway capabilities in northern communities.
- ii) **Affordable access** - this is related to the amount of bandwidth available (low bandwidth slows data delivery increasing the number of minutes and therefore cost of data transmission). In 1994 Internet access nodes were located in Yellowknife and Whitehorse. Anyone not living in those municipalities had to pay long distance charges in order to gain Internet access.
- iii) **Access to basic services considered essential to daily life throughout Canada** such as, secondary and post-secondary education, legal, medical and banking services. Northern peoples must pay the cost of long distance calls or travel in order to have access to these services.
- iv) **Equality of access** - larger centres in the north (as in the South) generally have access to better telecommunications services, yet smaller centres with less resources have a greater need for these services (Ibid.: 22-25).

The remaining issues identified by the discussion groups are dependent on the principle of access.

b) Culture and Language

The potential impact of the information highway on culture and language was of concern to all participants, with most seeing an opportunity to strengthen culture and language.

Technology will have a major effect on language and it does not have to be negative. If local people are involved, there will

be major improvements in how we deliver programs and knowledge to the community (Ibid.: 27).

Based on the comments of participants, the successful use of information highway services is dependent on local, northern aboriginal control of the implementation and delivery of services (Ibid.: 27, 30). The work of Joel Demay, Lorna Roth, Gail Valaskakis and Michael Meadows would seem to support this contention (Demay 1993: 98-99; Roth and Valaskakis 1989: 232; Meadows 1995: 202).

c) Training

Herringer identified training as a component of access as did participants in *Connecting the North*.³⁹ It is significant that participants identified the importance of training both in terms of design and use of the information highway. The need for training in how to use the information highway indicates to what extent it seems to more closely mirror print rather than broadcast media. It requires special training (reading, typing computer skills) to use it, whereas, the listening and watching skills needed to "access" television and radio are (cultural differences and critical judgement skills aside) virtually inherent in any human being. Cultural autonomy on the information highway cannot be achieved merely through use of the technology. The involvement of northern aboriginal peoples in the design stage appears to be seen as equally critical, demonstrating a perception of the medium as adaptable to the designer. Innis tells us that the design of the infrastructure will be determined by the communications bias of the designer and that the final form that a

³⁹ Evidence of northern aboriginal peoples requesting access to training in how to use and manage telecommunications can be found as early as the 1970 conference on communications held in Yellowknife (Koeberling 1990: 19).

communications medium takes is dependent on the combined influence of environment and designer. Viewed from this perspective it seems only logical that northern aboriginal peoples be actively involved in the design of the northern information highway.

d) System of Accountability and Research and Development

Concerns about systems of accountability and about research and development reflect the importance of access to processes that determine what telecommunications services are needed, where and when they will be adopted. Again, this reflects a concern with infrastructure design. The identification of the need for a system of accountability is a call for an open process of public consultation regarding the installation of technologies, and regarding the establishment of rates to cover the cost of the technologies. *Connecting the North* participants indicated that northern telecommunications companies should recognize their special status as monopoly service providers in the north and seek community input on a regular basis (Inuit Broadcasting Corporation 1995: 35 - 39).

The need for northern participation in research and development is a call for access to funds to develop and adapt new technologies to the particular needs of northern aboriginal peoples (Ibid.: 40-41). For example, the issue of language (and therefore culture) is also intimately related to questions of research and development. Syllabics, the symbolic writing system used for many Inuit languages currently requires a graphics software for word processing on a computer. A graphics file requires more computer memory to operate than does a text file. A graphics file also requires a wider bandwidth than a text file for

transmission over the information highway. This has considerable cost implications.⁴⁰

e) **Funding**

Finally, participants discussed ways of funding the development of the information highway. Essentially, participants agreed that the development of the information highway would have to be a joint venture involving financial support from telecommunications companies, government and corporate users. They established three funding steps: infrastructure upgrades; long term maintenance at an acceptable, affordable level; training and development of northern content (Ibid.: 42)

The identification of the above issues and the presentations made by panelists indicate that the information highway in the north is a social, cultural and political issue, not only a technical one. Communications in the north have always been closely linked to the politics of economy and cultural expression as suggested in the work by Valaskakis and Roth. The development of the information highway is no different, as its implementation is closely linked to political and economic self-determination. "In all societies at all times, information is power" (Fisher 1982: 9).

⁴⁰ While the greater bandwidth available in all 58 recognized communities of the Northwest Territories and Nunavut will help to alleviate this problem, it is significant that the cost of transmission on the northern digital communications network is in part dependent on bandwidth. Other solutions are being sought. In 1998, a beta test was conducted on a standardized syllabic font designed using text software (Personal Interview, Peter Crass: June 5, 1998).

3.4.iii *Connecting the North* – Defining a Vision for the Information Highway

Who will control the flow of information? Who will develop it? Who will distribute it? How will it be distributed? These are all questions that were raised during *Connecting the North*. They reflect the same issues that concerned northern aboriginal peoples in the early 70s when television and satellite technologies began to arrive in the north. These concerns have become urgent and pertinent again in the 1990s because the information highway has been identified, not only as a new medium bringing with it a new industry and a new form of cultural expression, but also as a complete reorganization of society. Echoing the federal government, the Nunavut Implementation Commission (NIC) has identified communications technologies as playing an essential role in the future of the new territory.

The economic future of Nunavut will in some measure, be determined by the ability of Nunavut residents and their different levels of government to access information and plug into the global economy (Nunavut Implementation Commission 1995a: 3).

Aboriginal control of both content and the delivery system for the northern information highway was one of the clearest recommendations to come out of the *Connecting the North* symposium.

Although there are geographic and climactic challenges to setting up a northern information highway, *Connecting the North* suggested that the information highway could be implemented in the north using existing technologies, and relying on the existing telecommunications and broadcast expertise of northern peoples' (both aboriginal and non-aboriginal). Upgrading the telecommunications infrastructure that

existed in 1994, however, required a major financial commitment and a pooling of resources on the part of government, community and the private sector. Northerners expressed little hope that the telecommunications companies would recognize, and act, on the need for improved communications services in the north.

...we have only one telephone line into the community now and every time we ask for better telephone service we get told the cost is too high for the original installation and the community wouldn't generate enough revenue to make any better service feasible (Discussion Group, Jean Marie River, NWT in Inuit Broadcasting Corporation 1995: 34).

The telecommunications companies hold a pivotal role in the development of the information highway. Without their cooperation in the upgrading of the communications infrastructure, there would be no information highway in the north.

The first obstacle, then, in the development of the northern information highway was **technical access**; finding a cost-effective manner to connect communities east-west as well as north-south (Government Northwest Territories January, 1995: 1). The second obstacle was **affordable or economic access**. The initial installation fees to upgrade current equipment would require an increase in subscriber fees and would do little to bring down the high cost of long distance communication. Northerners already spend on average three times as much as southern subscribers per month for telephone service (Koebberling 1990: 26). For example, a call to a social service is almost always a long distance call in the north (Ibid.: 17). Past experience with the installation of telephone services has already demonstrated the difficulty in convincing service providers to adopt a policy which takes into account northern conditions (Ibid.: 17).

Government was identified as the most reliable source of funding by participants of *Connecting the North*. It was perceived that government service providers would gain the most financial benefits from on-line services and should therefore be prepared to make the initial investment required to upgrade the infrastructure (Inuit Broadcasting Corporation 1995: 43).

As suggested in Chapter Two, the history of telecommunications in the north indicates that the primary funder of telecommunications structures play a stronger role in determining infrastructure design than do local users (Koeberling 1990: 19). The typical pattern of development for the Canadian telephone system is to follow the dictates of the telephone companies which seek profit in large centres of economic activity, or, in the case of subsidies, the dictates of government administration which also emphasize larger centres where more government services and administrative offices are located (Cowan Buchwald 1997: 166; Koeberling 1990: 19).

Broadcast media also began by following this pattern. Television was first designed to offer southern programming to displaced southerners working in resource development projects in the north (Roth 1982: 31). Only when northern aboriginal peoples had successfully gained control of northern television production (through funding for Native Communications Societies) and distribution (through funding for TVNC), were they able to supply the type of programming they required at the hours they deemed necessary. Michael Meadows points out in his examination of TVNC and the Tanami Network that financial autonomy through local ownership is a key component to the success of these two projects (Meadows 1995: 207). Success in these terms involves the

appropriation by the dominated cultural group of a potentially colonizing medium controlled by the dominant group (Roth 1994: 355).

In reviewing aboriginal broadcasting in Canada, Roth and Valaskakis have identified the development of;

new constructions: local and regional identity formation, linguistic and heritage differences, possibilities for the development of new interactive relationships between producers and audiences, models for uses of broadcasting to change the consciousness of audiences, and the development of participation and political awareness (Roth and Valaskakis 1989: 232).

Similarly, with respect to TVNC and the Tanami Network, Meadows concludes that the effective appropriation of new media by indigenous peoples has great potential as a tool for self-determination (Meadows 1995: 206). Meadows, in examining both the TVNC and Tanami Network concludes that public policy has an important role to play in ensuring indigenous peoples have access to new technologies. He further suggests that public policy that relies on the notion of social justice might represent a means to providing for that access (Ibid.: 209). The distributive justice suggested by Young and discussed in Chapter Two in terms of the Canadian broadcast and telephone systems indicates a Canadian precedent for the development of northern information highway along those same principles.

The final report on *Connecting the North* closes with the following question that directs the reader to look to Canadian public policy for the solution to the challenges posed in establishing a northern information highway.

What is your vision of Canada? The national broadcast system, the postal system and the health care system are

based on the premise that a minimum level of service is extended to everyone (Inuit Broadcasting Corporation 1995: 49).

An answer to that question can be found in the government policy documents on the information highway and in a review of the first steps towards implementation. These policy documents will be discussed in the section that follows. The first steps towards implementation of the information highway in the north are examined in Chapter Four.

3.5 Framing the Discussion - The Federal Government Establishes its Vision of the Information Highway

The federal government sets national policy through documents, programs and funding. This is often carried out on an *ad hoc/post hoc* basis as in the case of the development of aboriginal communications in Canada's north (Roth 1994: 356-363). In other cases, the government adopts a particular policy agenda which can influence, if not determine, the outcome of a public policy process (Sawchuk 1995: 2). While the structure and services available on the information highway have developed on an *ad hoc* basis in Canada's South and much of the Western World, Canada's federal government, along with the governments of other nations, are now developing public policy with regards to the information highway. The United States, in particular, has taken a leadership role in investing in the information highway and in linking it to employment and economic renewal (Menzies 1994: 21). Canada has followed suit in presenting the information highway as primarily an economic issue. Since the January 1993 Throne Speech which indicated the federal government's intention to "implement a Canadian strategy for an information highway" (Throne Speech January 1993: 2), the Canadian

government has taken an active role in the development of public policy regarding the information highway (Gerrard 1994: 7). In March 1994, John Manley, then Minister of Industry, created the Information Highway Advisory Council (IHAC) consisting of representatives from governments, industry, labour and consumer groups to examine fifteen issues "ranging from competition to culture, from access to learning, and research and development" (Information Highway Advisory Council September 1995: vii).⁴¹ The Advisory Council was to be guided by the following policy objectives:

- creating jobs through innovation and investment in Canada
- reinforcing Canadian sovereignty and cultural identity
- ensuring universal access at reasonable cost (Ibid. vii).

These objectives were to be realized according to the following operating principles:

- an interconnected and interoperable network of networks,
- collaborative public and private sector development,
- competition in facilities, products and services,
- privacy protection and network security,
- lifelong learning as a key design element of Canada's information highway (Ibid.: vii).

The above objectives have set the parameters for the public policy debate on the information highway. While the federal government has not stated that the objectives are listed according to priority, certainly the first objective has garnered much attention and financial support.

Job creation is often regarded as the principal advantage of the information highway, although there are dissenting views, which policy-

⁴¹ The fact that the federal government did not name any artists to the Advisory Council, met with some opposition (Austen 1994: D2) and seems to confirm the government's commitment to view the information highway as primarily an industry issue. A working committee on the Arts and Canadian culture was eventually struck to work directly with the arts community (Ibid.).

makers tend to put aside in their enthusiasm for the new technology (Sawchuk 1995: 4-5). Jon Gerrard, then Secretary of State for Science, Research and Development, emphasized job creation in his address within the context of "Powering Up North America," a conference on the information highway held in 1994 for industry leaders:

We are all here because we understand the direct relationship between high technology and economic success...We are convinced that the information highway will lead to long-term job creation (Gerrard 1994: 2-5).

Sawchuk, referring to the work of economists Elizabeth Stromber and Heather Arnold, points out that the same patterns of employment exist in high tech fields as they do, in general, in the workforce; lower-paying jobs with little status have a much higher percentage of women, and racial and ethnic minorities (Sawchuk 1995: 5). This implies that unless the new jobs are structured differently, the same patterns will emerge, further ghettoizing that portion of the population. For northern aboriginal peoples this is a crucial consideration, and one which did not escape the notice of the *Connecting the North* discussion groups which all indicated the importance of training and aboriginal ownership of information highway technology in order to take advantage of job creation.

This training must begin immediately, to ensure that Northerners can design and develop their own communications systems and manage the technologies. (Inuit Broadcasting Corporation 1995: 32).

Technological nationalism is at work again to **reinforce Canadian sovereignty and culture** on the information highway. The threat of assimilation into the United States is key to the notion of technological nationalism, but, as Sawchuk points out, the perceived new threat, and at the same time, opportunity for cultural expression and economic growth,

is "globalization" (Sawchuk 1995: 6). The notion of globalization is also used to reinforce arguments for an economic interpretation of the information highway. "Globalization is survival of the fittest" (Donald Vice in Ibid.: 7). In a 1994 publication, Industry Canada states that unless Canadian telecommunications systems are upgraded to meet the technical standards of the United States. "...Canadians could find their communications systems almost devoid of Canadian content, products and services" (Government of Canada 1994: 5). This reflects the Canadian experience with television. The federal government saw an urgent need to develop Canadian content for television to assert Canadian identity and Canadian sovereignty.

The assumption behind technological nationalism is that if the United States, or some other country, supplies a higher technical standard, Canada will lose its business to that country. This statement demonstrates the intimate link between the quality and control of technical infrastructure and the ability to produce content. The north, as a microcosm of Canada, runs the risk of losing aboriginal languages and cultural practices through assimilation on the information highway. If northern aboriginal peoples have no control over the technical infrastructure in the north, they may not have access to that infrastructure. Many *Connecting the North* participants recognized the potential of the information highway to reinforce languages and culture, provided that aboriginal control of the technology is achieved (Inuit Broadcasting Corporation 1995: 30-31).

Although **access at reasonable cost** is ensured through the *Telecommunications Act*, access to even basic telephone service has not been a given in the north where some communities were served by a single

UHF⁴² phone line capable of voice transmission only, until May 1998 (Personal Interview, Peter Crass: June 4, 1998). Discussion of access at affordable cost in the north focuses on the poor technological infrastructure as well as the high cost of long-distance charges, and the cost of upgrading facilities in communities which do not generate sufficient revenue to warrant those upgrades (at least from the point of view of the telecommunications companies) (Inuit Broadcasting Corporation 1995: 34).

While the objectives and principles set out by the federal government leave some room for interpretation, two measures that have been taken indicate its support for the extension of the current market economy model for the telecommunications industry to include the information highway. In fact, in 1993 the federal government assigned to private corporations supplying telecommunications services the role of developing the information highway infrastructure.

First, the federal government created an infrastructure renewal program of \$6 billion, and awarded \$26 million to CANARIE (Canadian Network for the Advancement of Research, Industry and Education) to further develop the Canadian information highway (Menzies 1994: 21). Federally incorporated as a non-profit organization in March 1993, CANARIE is a consortium of industry (telecommunications carriers, information technology providers, content suppliers), academic and governmental institutions, non-profit organizations and Carnet Networking Inc. CANARIE consists of about 100 fee-paying members as

⁴² Ultra-High Frequency (UHF) telephones are two-way radios which operate at a frequency of 300 to 3,000 megahertz. They are typically used for communication over land or water and require antennae in both locations.

well as non-voting associate members. Fees range from \$2,500 per year to \$20,000 for members with global revenues above \$200 million (Angus and McKie 1994: 88). The high cost of membership has caused smaller technology companies and non-profit organizations such as FreeNets to complain that CANARIE is designed to advance the interests of the large telecommunications carriers and technology providers represented on the Board of Directors of CANARIE (Ibid.: 100-101).

Secondly, in October 1994, the federal government requested that the CRTC hold hearings on the information highway. Order-In-Council P.C. 1994-1689, which sets out the request, lists the same objectives and the first four principles assigned to the Information Highway Advisory Council.⁴³ In the Order-In-Council, the government then goes on to detail its "vision of competition" because "the information highway will be essential to Canada's emerging information economy" (Order-in-Council P.C . 1994-1689: 2).

The government is concerned, in this Order-In-Council, with the mechanics of developing an "interconnected, interoperable" telecommunications system while addressing the issue of the development of Canadian content for the information highway without recognizing all of the players already active in the development of information highway services. The Internet Public Interest Research Group (IPIRG) points out in its submission to the CRTC hearings on the information highway that Public Notice 1994-130 and Order-In-Council P.C. 1994-1689 do not make mention of the active role taken by community computer networks in shaping the information highway (Internet Public Interest Research

⁴³ The Advisory Council itself recommended adding the principle of life long learning to its mandate (Information Highway Advisory Council 1995: xv)

Group 1995: 4). The government does name "collaborative private and public sector development" as one of the four operating principles (Order-in-Council P.C. 1994-1689: 1); however, the focus of the Order is on the role that telecommunications companies (common carriers) will take to ensure the above-cited objectives.

Through these two measures the federal government has clearly situated the information highway within the context of a market economy development model. The adoption of this approach could result in the reductionist view expressed by John Manley, then Minister of Industry, that the information highway will be a .."client-centered one stop shopping center for a range of information services" (Sawchuk 1995: 8). This vision represents the people of Canada as consumers first, citizens second. The information highway becomes an interactive shopping experience. The debate, then, is couched in terms of economic renewal, growth and profit. Questions of public need are evaluated in terms of cost-effectiveness and buying-power.

Framing the debate in these terms has serious repercussions for regions such as northern Canada where reliable long distance telephone service was still unavailable in the mid 1990's (Inuit Broadcasting Corporation 1993: 43). As discussed earlier, the history of the development of the Canadian telephone system offers several examples of the ineffectiveness of monopoly telephone companies to provide universal service at affordable rates without government intervention (Cowan Buchwald 1997: 165). Heather Menzies contends that it is how the debate is framed that will determine the form the information highway will ultimately take (Menzies 1994: 25). Will it be an "information mall" as suggested by Andrew Bjerring of CANARIE or a "commons" as proposed by Garth

Graham of Telecommunities Canada⁴⁴ (Ibid.: 24)? John Manley clearly stated the preference of Industry Canada for the commercial, information mall model.

The decision of the federal government to couch discussion of the information highway in market economy terms, following the model of the United States, as well as prevailing notions of economic development based on existing industrial models, while supporting positive initiatives such as the creation of a research network and an educational network, gives priority to the economic renewal of the telecommunications and information-service sectors (Ibid. 1996: 53). At the same time, there is a push to bring service sectors in line with the corporate agenda based on communications/service-as-a commodity (Ibid.: 11, 65-69).

Menzies suggests that the trend to support the corporate agenda represents the increasing power of the corporate sector in ordering society. Relying on Innis' theory of communication bias she illustrates how increased use of the computer has changed the workplace. Menzies concurs with James A. Carey in his assessment that; "Electronics, like print in its early phases, is biased toward supporting one type of civilization: a powerhouse society dedicated to wealth, power and productivity, to technical perfectionism and ethical nihilism" (Carey 1992: 171-2).

Further, she suggests that the "virtual corporations," multi-national companies which are emerging in a "globally networked economy," represent the ultimate culmination of the monopoly of knowledge structures that are the inevitable outcome of a space-bias society. She traces a line through the invention of the microprocessor in the 1970s, to

⁴⁴ Telecommunities Canada is a not-for-profit organization established in August 1994 that represents over 40 community networks.

increased integration of computers and internal networks in the corporate workplace, culminating in the development of globally networked multi-media communications systems (Menzies 1996: 21). Questioning the real economic benefits proposed by supporters of the "information mall," Menzies points to the disturbing trend of jobless economic growth along with a drop in wages. This shift, which flies in the face of conventional economic theory, appears to be the hallmark of increased productivity in the post-industrial age.

It suggests that the distribution of power in society is fundamentally shifting in the move from the industrial to the postindustrial economy. Where people were once generally central to the industrial and bureaucratic process and able to leverage their share of benefits, now machines and machine intelligence are central (Ibid.: 35).

This is the focus of Menzies' concern. Where are the human beings on the information highway? What is the information highway for? Who is deciding how the information highway is to be used? These concerns were also expressed in the 1993 IBC needs analysis and at *Connecting the North*.

Southern Canadians have not had the opportunity to discuss the implications of the information highway through a wide-scale open public consultation process. The national consultation process has been limited to public hearings on the information highway conducted by the CRTC and in accordance with the agenda set out in Order-in-Council P.C. 1994-1689. Additional investigations into the information highway were carried out through private interviews and research conducted by the IHAC, which also followed the agenda of the federal government, discussed earlier in this chapter.

Both the CRTC hearings and the investigation into the information highway by the IHAC offered an opportunity for groups to present other

visions of the information highway. As discussed above, the federal government established the context within which the information highway was to be discussed through Order-In-Council P.C. 1994-1689. This position was further reinforced through the awarding of information highway development money to CANARIE and through the choice of members for the Information Highway Advisory Council. Both actions indicated a clear support for the development of the information highway by private enterprise. Throughout this process, there was little real debate on the guiding model for the information highway because of how the government defined the terms for discussion and debate (Ibid.: 16). A public service model was not "named" into the discussion. Those wishing to defend the public service approach were obliged to do so with terms more appropriate to the market economy model. Groups such as the Internet Public Interest Research Group and the northern Native Communications Societies, however, had the opportunity to respond to the federal government's position at the CRTC public hearings on the information highway. The recommendations made by the CRTC and the IHAC following the public hearings are discussed below.

3.5.i The CRTC Public Hearings on the Information Highway: A "Sympathetic Ear" for Northern Concerns

As suggested in Chapter Two, the CRTC plays a key role in the ongoing development of public policy for the information highway in Canada. It is largely responsible for determining the form of the infrastructure and thus the format of the information highway. For example, the CRTC regulates how quickly telephone lines must be upgraded to meet information highway requirements. In addition, it is responsible for

defining, through regulation, notions of universal service and access at affordable cost. Finally, it is concerned with ensuring that the content of information highway services has a strong Canadian component (CRTC "Summary Report" 1995: 3).

The CRTC Public Hearings on the Information Highway was defined by *Public Notice 1994-130, a Call for Comments Concerning "a number of wide-ranging questions covering three broad areas: facilities, content and competition"* (CRTC Public Notice: 1994-130). The hearings, held in February 1995, provided a national forum in which many of the concerns and recommendations expressed by northern peoples both in the 1993 IBC needs analysis, and at *Connecting the North* in 1994, were crystallized and expanded according to the perspectives of the various stakeholders. The IBC needs analysis, and *Connecting the North*, created a solid body of evidence based on public consultation that northern stakeholders and the CRTC had to take into account during the hearings.

The Inuit Tapirisat of Canada (ITC), IBC and TVNC among other northern aboriginal organizations, as well as the GNWT, identified the information highway as an inevitability. These organizations chose to support northern aboriginal peoples' control of the "how, when, where and why" of the new communications technology as the best defense against erosion of culture and language and further marginalization. Northern aboriginal organizations indicated their support for an aboriginal-controlled and owned northern information highway as a primary principle for the successful implementation and development of a northern information highway. A major focus of their arguments was the notion of access as it relates to the right to communicate. To reinforce their position, Native Communications Societies such as TVNC and IBC, as well as the ITC

and the GNWT addressed the sociocultural and political cost of not linking the north to the information highway.

The Information highway is often touted as a way to eliminate distance. But for residents of remote northern communities, that statement is a cruel irony. The absence of information services reinforces the disadvantages of distance (Government Northwest Territories January 16, 1995: 5).

Video-conferencing may be a luxury for the average Canadian, but if the nearest lawyer, doctor, or bank manager is a \$1,000 plane ride away then that service can hardly be considered redundant or costly (Ibid. 6). Moving beyond the general notion of making "reliable and affordable telecommunications services of high quality accessible to Canadians in both urban and rural areas in all regions of Canada" (Angus and McKie December 14, 1994: 9) as stated in the *Telecommunications Act*, the Inuit Tapirisat of Canada (ITC), TVNC and GNWT called for a new definition of "basic service" which relies not on technology (which can and is changing rapidly), but on social considerations (Television Northern Canada February 13, 1995: 4, Government Northwest Territories January 16, 1995: 6).

A resident of any small northern community should be able to access the same quality of services at the same price as a resident of Ottawa (Inuit Tapirisat of Canada 1995: 3).

These northern aboriginal organizations argued that the provision of an information highway in the north depends on balancing "technical" issues of communications systems and costs against the "human" considerations of offering some sort of basic service throughout the north. Herringer and MacBride both point to the essential human dimension inherent in the concept of the right to communicate. The ITC's vision of the information highway as a unique opportunity to ensure equal access based

on a broad definition of basic services throughout the country represents a demand for the full recognition of the right to communicate. In order for this to happen, the ITC goes on to argue that the north must be served with at least the same quality of communications technology as southern urban Canada, which requires that the public sector play a leading role in the development of the information (Ibid.: 3). The ITC referred to Canadian communications policy that has addressed the special needs of particular regions and communities through a public service tradition that is based on notions of distributive justice as discussed in Chapter Two.

The speed at which communications technology is changing does make it difficult to define basic service in terms of the technology. Looking at communications in terms of human need could provide for an equitable sharing of communications resources.

It is not sufficiently realized that [postal and telecommunications] facilities and services are not only the outcome of economic growth, but also a precondition of overall development and even of democratic life (MacBride 1980: 55).

Communications, as Herringer and MacBride have demonstrated, is not the (relatively) simple technical act of connecting wires, satellites and microwave towers. It is an essential, basic human activity and not only a growth industry. Menzies also emphasizes the human factor in communications, indicating that plans for education and research networks can reach their full potential "only if they are genuinely designed and operated on the terms of the people involved -- as extensions of existing research and learning communities and cultures, not as commercial substitutes expressing the communications-as-commodity-model dominating the corporate agenda" (Menzies 1996: 53). Heather

Hudson and Aviva Farbstein suggest defining basic service in terms of functional rather than technical considerations (Farbstein 1995: 395).

Farbstein proposes a functional definition that would take into consideration principles already governing access to communications technology including: "1) the right to communicate; 2) the ability to originate content without outside interference; 3) the right to access information; and 4) access to emergency or essential services." (Ibid.: 397). While Farbstein's functional definition assumes the right to communicate is an acquired and ensured principle of access to communications, the experience of northern aboriginal peoples with telecommunications technology indicates that this is not true for all regions of Canada. The northern aboriginal organizations' proposed definition of basic service in human terms, while based on the same principles proposed by Farbstein, broadens the definition by focusing on the issue of access.

Northern aboriginal peoples' identified four types of access: a) physical/technical access; b) affordable access; c) access to essential services of daily life in southern urban Canada; and d) equality of access regardless of geography. Other concerns which were given high priority at *Connecting the North* such as: training; accountability; research and development; and, language and culture are all closely tied to the issue of access as discussed earlier in this chapter. The choice of terms is important. The word "functional" highlights the use made of the technology while the word "human" is a constant reminder of the user, designer and administrator of the technology; a constant reminder that ultimately people determine the function of technology.

Heather Menzies states that the primary function of technology is to serve human needs (Menzies 1996: 133). She opposes the transportation model of communications based on "commodity transmission" with a model of communications based on "community, culture, and personal participation" (Ibid.: 145). Menzies suggests the model of communications-as-community participation is the realization of Innis' public sphere, a response to his plea for time, and an expression of the human, holistic approach to living that he found in oral culture (Ibid: 139). Menzies proposes that it is possible to reorient discussion about the information highway to include possible patterns for its structure other than the prevailing market economy-based model.

A first step in doing so is to offer alternate definitions of key terms, or what Raymond Williams calls "key words" in the prevailing discourse (Ibid: 16). Menzies cites the examples of the Ontario Library Association (OLA) and the Public Interest Advocacy Centre (PIAC) which attempt to extend the definition of "access" by essentially flipping it. What is the function of access? Participation. The OLA and PIAC propose replacing the notion of "ensuring affordable access" with the notion of ensuring that telecommunications services are available to allow every citizen full participation in society (Ibid.: 150). Menzies contends that in renaming the various elements of the information highway it is possible to speak of it in terms other than "job creation" and "economic renewal" (Ibid.: 16). Different words can allow for a different focus of discussion. The definition of "basic service" proposed by the northern aboriginal organizations encourages consideration of the broad human implications of improved communications services in daily life, not only in economic terms.

Heather Menzies indicates that there is room for both the commodity-communications and the community-communications models, but that government must take an active role in "facilitating and even mandating collaborations between the big carrier interests and the plethora of institutions associated with content in the public sector, plus the informal, cultural, community and voluntary economies..." (Ibid. 1994: 20). In their comments submitted to the CRTC in response to Public Notice 1994-130, the Internet Public Interest Research Group and Telecommunities Canada (TC) in accordance with the views of Menzies support the principles of the *Broadcasting Act*, which describe the Canadian broadcasting system as "comprising public, private and community elements" (*Broadcasting Act* 1991: section 3(b)).

In essence, groups representing the "public lanes" (Mark Surman in Internet Public Interest Research Group 1995: 2) of the information highway, including important northern players (GNWT, IBC, TVNC, ITC) have called for a public service approach to the information highway which recognizes the audience/consumer as a citizen first. The purpose of the CRTC public hearings is to allow all concerned parties to express their opinions. It then falls to the CRTC, as regulator of the telecommunications industry to balance the interests of the private and public sectors in making recommendations to the federal government.

3.5.ii CRTC Policy Recommendations and Decisions Affecting the Northern Information Highway in 1995

The CRTC has long supported communications initiatives by aboriginal peoples in the Canadian north through regulations and decisions that recognize the uniqueness of that region and its peoples (Roth 1994: 207-

210). The CRTC's final report on the proceedings on the information highway, *Competition and Culture on Canada's Information Highway: Managing the Realities of Transition*, supports many of the views and goals expressed during *Connecting the North* and referred to during the public hearings by the northern telecommunications stakeholders.

Two recommendations directly support the principle of the right to communicate and the goals expressed at *Connecting the North*: (1) "affordable public access" including public access points within each community, and (2) "preferential telecommunications tariffs for education and health services." These recommendations point towards the goal of ensuring equalized access. The first steps towards policy implementation and the real expression of these recommendations will be explored in Chapter Four.

A third recommendation with a direct bearing on the north is the expectation that broadcasting distributors and cable operators will contribute to "outlets for community expression" (CRTC "Summary Report" 1995: 3). This is one way that the CRTC has chosen to ensure that telecommunications companies remain good corporate citizens in the locations in which they operate. Their profits are derived from northern communities and they are expected, and at times directed, to support those communities.

This policy is also important in maintaining good relationships between northern aboriginal organizations and the monopoly telecommunications companies. In Decisions 95-898 and 95-897, the CRTC set the course for the development of the information highway in the north. The two decisions concern cable licenses and resulted in a fundamental shift in northern telecommunications. The CRTC approved the entry of

NorthwesTel, the main telephone company in northern Canada, into the cable business creating a communications monopoly. It also approved extending cable licenses of Arctic Cooperative Limited (ACL). NorthwesTel Cable Inc. and ACL then effectively divvied up the northern cable territory.

While the CRTC opposes monopolies in principle and upholds the pro-competitive policy set out by the federal government in Order-in-Council 1994-1689, it recognizes, along with the federal government, that this policy may be inappropriate in some regions of the country (CRTC "Summary Report" 1995: 1). The decision to allow NorthwesTel to enter the cable industry met with some opposition as many northern residents were already resentful of the high cost and perceived poor service NorthwesTel provided, especially in more remote communities (Television Northern Canada August 29, 1995: 5). In view of the potential of this decision to bring information highway services to the north rapidly, and at affordable rates, however, the GNWT, IBC, ACL and TVNC indicated their conditional support to the CRTC.⁴⁵ This is a demonstration of the give and take balancing act that the CRTC carries out, weighing human and technical concerns against economic imperatives within the context defined by the federal government.

The IHAC has played a different role from the CRTC as it is purely an advisory body to the federal government, however; it too has worked within the agenda set out by the federal government.

⁴⁵ NorthwesTel was accorded the cable-license on the condition that it contribute a fixed portion of its subscriber fees to an Aboriginal Production Fund to be administered by TVNC. This condition was essential to the GNWT, IBC's and TVNC's support for the bid.

3.5.iii The Information Highway Advisory Council

Recommendations Affecting the Northern Information Highway

The Information Highway Advisory Council (IHAC) comprising 29 members is divided into five working groups to which 26 ex-officio members were added to deal specifically with the following topics: access and social impacts, Canadian content and culture, competitiveness and job creation, learning and training, research and development, and applications and market development (Information Highway Advisory Council 1997: vii - cc). All of the topics considered by the IHAC are of concern to northern residents, both aboriginal and non-aboriginal as they are for all Canadians. The recommendations of the access and social policy committee were of particular importance to the north. Recommendations 13.3, 13.7, 13.8, 13.9, 13.10, 13.21, 13.22 and 14.3 in particular are detailed below. These recommendations are both pertinent to the north and representative of how the IHAC attempted to address the human dimension of the information highway. While the IHAC concluded from its deliberations that the human element should be addressed in information highway policy, Menzies points out that the IHAC only really considered one model for the information highway (Menzies 1996: 150), the communications-as-commodity model. This is hardly surprising given the agenda laid out by the federal government that defined any discussion of the information highway in terms of a market economy model. The federal government further defined the direction of the discussions by heavily weighting the IHAC with members from the telecommunications industries, information technology industries and banks who would be likely to support the proposed agenda.

Any examination of the recommendations of the IHAC must first take into account the overall vision proposed by the IHAC. It is a vision that confirms the appropriateness of the corporate model for the information highway as a means for supplying communications-as-commodity with as little government intervention as possible (Ibid.: 55). Menzies suggests that the IHAC was only paying lip-service to the human dimension of the information highway (Ibid.: 149). Menzies points to the IHAC's second recommendation (among others) to support her contention. The recommendation reads: "the Information Highway network and new infrastructure should be left to the private sector, and the risks and rewards of the investment should accrue to the investors" (Information Highway Advisory Council 1997: Rec. 1.2 p. 93). Essentially the federal government is requested to do what is necessary to provide for a competitive environment conducive to the corporate agenda. In view of this scenario, providing public access to the information highway remains a responsibility of government and one which can more effectively be dealt with once the information highway has been built by big business (Menzies 1996: 54). This model does not allow for the integration of a public process into the design of the information highway. The implications of these recommendations in terms of the implementation of the northern information highway will be discussed in Chapter Four.

While the IHAC was preoccupied with recommending a corporate model for the information highway it did address issues specific to the human dimension identified as essential by the northern aboriginal organizations. Several recommendations discuss the issues of basic service or universal access, education and training, research and development, and culture and language. Faced with the impossibility of defining **basic**

service or universal access in terms of technological and commercial priorities (Information Highway Advisory Council 1997: 41), the IHAC offered the notion of universal service "regardless of geographical location" (Ibid.: 170). It defined universal service as "...those services that become essential to daily life for a majority of the population" (Ibid.: 171). It assigned to the CRTC the task of periodically evaluating, through public consultation, the criteria for universal services as well as determining the conditions and rates for service. The preferred mechanism of ensuring universal access and services remains the market economy.

Public policy should rely primarily upon competitive market forces to ensure universal access to Information Highway services and products at affordable prices. Government intervention should occur only where market forces demonstrably fail to safeguard this policy objective (Ibid.: Rec. 13.3).

When market forces fail, the IHAC suggests that the federal government or the CRTC, through public consultation, find "explicit," "transparent" and "competitively neutral" mechanisms to counterbalance market failure and ensure universal access. Essentially these recommendations represent strong support for the market economy model to the telecommunications industry and push Canada farther from its traditional approach of mixed private-public approach (Menzies 1996: 54). Nonetheless, northern aboriginal organizations were successful in transmitting the message that the information highway could provide access to services not normally available in a community as evidenced in Recommendation 13.9.

The Council therefore recommends a special tariff policy to ensure affordable access to services deemed essential for people and communities with special needs (Ibid.: Rec. 13.9).

This recommendation does seem to leave room for the continued application of the notion of distributive justice in ensuring universal service as evidenced in the programs supporting northern telecommunications and broadcasting discussed in Chapter 2.

Northern aboriginal peoples were successful in attaining recommendations that recognize the improvement of northern telephone services as a high priority (Ibid.: 44). As a minimum first step towards universal service for remote and rural communities, the IHAC recommended (Recommendation 13.7) that "touch tone" service and digital switching be made available to all Canadians at reasonable rates by the year 2,000" (Ibid.: 172-173). The IHAC went a step further to prevent northern telecommunications from lagging behind southern systems by calling on the CRTC to be vigilant in ensuring that upgrades to telecommunications systems benefit Canadians in rural and remote areas (Recommendation 13.8).

Another issue of access identified by northern aboriginal organizations, **education and training**, was dealt with extensively by the IHAC. Training and education came under the separate (but related) issue of life long learning. The IHAC recognized this issue in terms of all Canadians (Recommendation 14.3), calling on government to work with stakeholders to create a supportive learning environment in Canada. This includes ongoing training to professionals with regards to information technologies, adult education, transition to information workforce programs, cross-Canada distance education programs, and a national accreditation system to ease mobility of students. All of these recommendations have the potential to support northern goals in training and education.

Northern aboriginal organizations were also successful in terms of their concerns with **research and development** both with regards to technology and social issues. In Recommendation 13.10 the IHAC advises active support by government for research into wireless and satellite technology as the most promising technology to deal with the geographic and climactic challenges of Canada's far north (Ibid.: 45).

Recommendation 13.21 encourages government support of research "necessary to identify how gender, age and other social factors create differences in participation in the Information Highway" (Ibid.: 176). Recognizing and acting on differences of opportunity is advised in Recommendation 13.22 through a joint effort of government and stakeholders.

The IBC needs analysis and the Final Report on *Connecting the North* both raised issues of **culture and language**, with regards to access and content. Inuit organizations and those working with them stressed the difficulty in transmitting syllabics as graphic files. Northern aboriginal peoples may not use the current configuration of information highway services (largely text-based as discussed in Chapter Two) because they are not offered in Inuktitut or because visual or oral-based methods of communication are preferred. IHAC Recommendations 13.10, 13.21, and 13.22 regarding research and development address the issue of language in part, at least, Recommendation 13.14 provides further, indirect recognition of those needs:

Public policy should strongly support the development of uniform, easy-to-use methods of accessing advanced telecommunications and content-based services: in both official languages and with multilingual capability (Ibid.: 174).

Also of importance is the IHAC's proposed principle of universal service which includes "adequate opportunity for self-expression and participation in the information society" (Ibid.: 170). This demonstrates the extent to which the right to communicate is intrinsic to the information highway (provided access to participate is facilitated for all members of society).

Northern aboriginal concerns were recognized and supported by the IHAC; however, IHAC recommendations are to be carried out within a market economy model with a reduced role for government. This vision places the remote and rural regions of the country (such as the north), as well as those sectors of Canadian society that have special needs (whether economic or social), in a vulnerable position as their access to universal communications services at an affordable rate traditionally has been dependent on regulatory actions taken by the federal government. Although the IHAC held an advisory role, there are few surprises in the federal government's action plan for the information highway in Canada as it is a straight forward adaptation of the recommendations put forth by the IHAC.

3.5.iv The Federal Government's Action Plan: Northern Voices are Recognized in National Policy

In April 1996 the Government of Canada published its action plan for the information highway; *Building the Information Society: Moving Canada into the 21st Century*. This policy paper upholds the three objectives and five operating principles first published in 1994 and described earlier in this chapter. As might be expected, it follows quite closely the recommendations of the IHAC.

Job Creation remains the primary focus of the policy plan and all other issues are defined in terms of their potential to stimulate economic growth and development.

The spread of electronic commerce will be one of the key benefits from building Canada's Information Highway" (Government of Canada 1996: 17).

Furthermore, the Treasury Board has promised to accelerate its conversion to electronic commerce, with the intention of working with industry on the implementation of regulations and standards (Ibid.: 17). The action plan does address directly the fact that various social factors affect the way new technologies are viewed and used. It promises to

examine the challenges and opportunities presented by the Information Highway with respect to the workplace, skills and employment, with a view to developing innovative adjustment strategies" (Ibid.: 21).

The recognition that social factors affect how the information highway is used and viewed is important to the development of the northern information highway where training and education, culture and language, and research have all been identified as key principles to the successful development of a northern information highway. In a direct response to aboriginal concerns, the paper recognizes the initiative taken by Industry Canada to train aboriginal entrepreneurs in use of the Internet and to support the development of aboriginal web sites (Ibid.: 20). This appears to indicate ongoing federal policy commitment to distributive justice in addressing equality and affordability of access to telecommunications for all Canadians. Distance learning is identified as a benefit of the information highway and the government indicates it intends to work with existing learning institutions, private enterprise and community groups to develop distance learning programs (Ibid.: 22).

The **reinforcement of Canadian sovereignty and culture** is to be achieved through the generation of Canadian content which is described in terms of job creation and opportunities to market Canadian cultural products internationally (Ibid.: 12). For example, the action plan proposes to encourage Canada's multi-media producers to develop educational materials with particular emphasis on aboriginal and French-language content (Ibid.: 20). The Minister of Canadian Heritage, in consultation with other ministers and provincial and territorial governments, is to develop a national strategy for Canadian content. The ministries of Canadian Heritage, Industry Canada, Foreign Affairs and International Trade are to create an export development strategy. In terms of regulating Canadian content, the Government has recognized the importance of both the *Broadcasting Act* and the CRTC in upholding Canadian cultural objectives.

The CRTC will continue to play its important role to ensure the fulfillment of the long-standing cultural policy objectives enshrined in the *Broadcasting Act* (Ibid.: 15).

This is significant for the Native Communications Societies in northern Canada as aboriginal interests were finally recognized in the 1991 *Broadcasting Act*. It also ensures that northern aboriginal peoples will continue to make their voices heard through the "sympathetic ear" of the CRTC.

The federal government's action plan for the information highway seems to offer a solid commitment to access at reasonable cost. While it doesn't address specifically the details of how public access is to be provided, it promises to do so through public access points such as public libraries, community centres, schools and shopping malls (Ibid.: 24). It

goes further, however, in guaranteeing financial and regulatory support to ensure information highway services be made available in the north.

In cases where market forces cannot provide such services, the strategy will identify the means -- regulatory, financial or otherwise -- of providing them to people living in rural, remote and northern communities. For northern communities, special emphasis will be placed on the potential of wireless and satellite services to assure access, particularly in aboriginal communities" (Ibid.: 24).

This statement seems to point to a continued application of the concept of social justice in ensuring universal service.⁴⁶

The above measures serve to demonstrate some level of successful intervention on the part of northern aboriginal peoples in the national public policy process of defining the information highway. It is significant that their intervention was limited to what could be termed areas of special concern as opposed to the overall vision of the information highway. Heather Menzies' analysis of the policy-making process offers some explanation for this in her discussion on the importance of renaming and redefining the terms for discussing the information highway in order to access a more human definition. Northern aboriginal organizations were successful in doing so in terms of the issue of universal service or basic service; however, in order to make their voices heard they generally expressed their goals for the information highway using the discourse proposed by the federal government. It is perhaps because they accepted the argument for economic renewal that they were successful in making

⁴⁶ In 1998, this policy was put to the test as the CRTC conducted public hearings on "Telecommunications services to High-cost Areas" (Telecom Public Notice 97-42). Deregulation of the telephone industry since the 1980s has brought increased choice and lower long-distance rates to urban centres. The hearings are being conducted in response to the fact that deregulation has not benefited remote and rural regions of Canada. This issue is viewed as key to ensuring universal access to the information highway.

their voices heard. As Rianne Mahon suggests, a successful lobby will demonstrate a compromised position where the interests of government and a particular group can meet. A look at the roles played by the key northern aboriginal organizations and governments during the lobbying process sheds light on why northern aboriginal peoples were able to impact on the national policy process.

3.6 The Role of Aboriginal Organizations and Northern Governments in Lobbying for a Northern Information Highway

The push to develop a northern information highway with a strong representation of aboriginal peoples both physically, in terms of owning, developing and exploiting new technologies; and philosophically, in terms of the organization and nature of the services provided, can be seen to be localized within the following organizations: IBC, TVNC and the GNWT. Each organization has taken on a specific role in what has become a collective effort to design a northern information highway. All three organizations were active participants in the CRTC public hearings, but their roles went beyond that of lobbying.

IBC, licensed by the CRTC in 1981, is a northern aboriginal-operated television network. It was mandated to produce culturally relevant video for broadcast in the north and to train northern aboriginal peoples in television production. It has been a strong organizing force in the development of a northern information highway. It conducted the study of the telecommunications needs of Northerners in 1993, organized the symposium *Connecting the North* in 1994 and published the final report on the symposium in 1995.

Licensed in 1991, **TVNC** was conceived to ensure reliable distribution of aboriginal-produced TV across the Arctic. Continuing its commitment to expand aboriginal control of telecommunications in the north, TVNC has taken an active role in the development of the northern information highway infrastructure and services. It was involved in the organizing and broadcasting of the symposium *Connecting the North*. It took an active role in the primary stages of the implementation of the information highway in filing a proposal to operate a northern digital network. This activity will be discussed in chapter four.

The **GNWT** has played an instrumental role in supplying funding for both the needs analysis in 1993 and for *Connecting the North* in 1994. At the same time, it has been developing its own priorities and programs on the information highway. It entered the debate on the northern information highway with a clear policy in place. In September 1994, just prior to *Connecting the North*, it published a comprehensive document on its vision for the information highway. The Department of Education, Culture and Employment, recognized, at that time, that in the face of major changes to the role and form of the territorial government, it was time to examine the education system (Education, Culture and Employment 1994: iii). The major change facing the territorial government was, of course, the imminent division of the Northwest Territories into two territories in 1999. The whole field of education from early years learning to grade school to adult education and life-long learning issues were studied in terms of the philosophy of a Community Learning Network. A Community Learning Network is anchored in the cultural heritage and language of the learner, demands active participation of all community members, recognizes the value of many

different kinds of learning, and offers programs to people of all ages (Ibid.: ix -x). An integral part of this network is a pan-northern system of information networks comprising the following:

- the *tools*, such as phone lines, computers, books that we need to have in place to let us share information;
- the *knowledge* of how to use the tools to share information for business, learning, entertainment;
- the *free public information services* such as libraries, broadcasting services or bulletin boards that are available through the networks (Ibid. 33).

Participants at *Connecting the North* identified issues that corresponded very closely to the GNWT's proposed pan-northern information systems networks: upgrading of infrastructure; education and training in how to use technology; and finally, affordable access. The following criteria for the information networks also coincide with concerns expressed at *Connecting the North*. The networks must be: "comprehensive," "integrated" and "interactive," that is they are to link all existing formats of communications technology (broadcast, video, phone, e-mail) in a manner so as to allow two-way communication (Ibid.: 33-34). These criteria also were compatible with the objectives and principles laid out by the federal government and discussed earlier in this chapter.

The declared vision of the Government of the Northwest Territories matched closely the vision which emerged from *Connecting the North*; however, one fundamental difference is noteworthy as it is at the basis of the philosophy which drives the development of the information highway. Northern aboriginal peoples have identified the social uses of communications technology as a high priority beginning with the interactive satellite experiments in the 1970s. At that point, Inuit participating in the experiments had already recognized the value of two-

way video communication in supporting the Inuit oral tradition and allowing for improved communication using a culturally-validated medium over a larger area. In the IBC needs analysis, northern aboriginal peoples signaled the importance of face-to-face verbal communications. In 1994, the video-conference presentation by the Warlpiri people of the Tanami Network again gave northern aboriginal peoples the opportunity to express their support for a combined visual and audio communications network. The Tanami Network reflects the values of the Warlpiri as they are the people who designed it, own it and operate it. It is a network designed to support social contact but that is able to supply a panoply of other information highway multi-media services to support its primary mandate. The GNWT, on the other hand, proposes to develop an interactive community network:

because they can make the delivery of government programs and services, particularly learning programs, more cost-effective (Ibid.: 36).

The potential for social exchange exists but that is not the primary mandate. The GNWT model follows more closely a communications-as-commodity model with its apparent overriding concern with "delivering" government services. Economic concerns are real and valid for all governments; however, the balance between cost-effectiveness and response to declared need is a delicate one which will affect the form of the information highway in the north. As stated earlier, government in a democracy, is subject to a system of checks and balances so that policy is a reflection of the compromise between various power blocs in the government. These power blocs are themselves subject to the lobbying power of groups outside of government.

In 1995, the Nunavut Implementation Commission (NIC) also stated its intent to administer the new territory of Nunavut using a decentralized model made possible through information highway services. It recognized the essential role of communications technologies in ensuring

... that the people and government of Nunavut have access to the tools and information needed for growth (Nunavut Implementation Commission 1995a: 54).

The NIC identifies both the potential for economic growth through access to global markets and growth of the territory itself through its planned decentralization of government departments and services. As the official languages of Nunavut are the Inuit language, French and English, the decentralization of services is expected to create a need for software applications, information highway service providers, communications systems developers, web site designers, etc. who are able to work in all three languages.

It is difficult to assess how the integration of information highway services into a decentralized government in Nunavut will work as so much of the process remains to be carried out, and under conditions which are unique to the Canadian context. Menzies' analysis would suggest that acceptance of the market economy model as the only, or most valid, model for the information highway limits the use of the technology to a communications-as-commodity mentality leaving little room for supporting the very human values of social communication demonstrated in the Tanami Network.

3.7 Conclusion

Adapting strategies used to lobby the federal government for broadcast rights, northern aboriginal organizations worked quickly and efficiently to

produce a collective vision of what form the information highway should take in the north. Innovative use of the existing broadcast communications technology coupled with pilot testing of newer ATM and video-conference technologies sent a strong message to federal and territorial policy-makers. From the point of view of policy, *Connecting the North* was a success. It produced a significant coherent body of evidence that federal policy-makers at the CRTC and the IHAC had to take into account in designing information highway policy. The fact that a number of the stated goals and objectives of the northern aboriginal organizations coincided with those of both the territorial and federal governments facilitated that process.⁴⁷ Northern aboriginal organizations and governments accepted the federal government's argument for economic renewal through the information highway; however, the vision northern aboriginal organizations proposed for the information highway also recognized the importance of designing the information highway to respond to human need.

Heather Menzies proposes that there is room for both the communications-as-commodity model and the communications-as-community participation model. The northern vision of information highway services offered in terms of human need provides an example of the sort of compromise Menzies suggests is necessary. This echoes the ideas put forth by the argument for the right to communicate. Communications is a basic human need and a fundamental element of human society, for these reasons, it seems evident that infrastructure should be determined principally by human need. Innis' theory of "monopoly of knowledge" and

⁴⁷ See Roth 1994 for detailed description of this process in terms of the development of northern aboriginal broadcast rights.

how it controls both infrastructure and the form and function of a medium lends support to Menzies' argument. Menzies points to the essential role infrastructure plays in determining whether both the communications-as-commodity and communications-as-community participation models can coexist. At the same time she indicates the difficulty in discussing the communications-as -community model within the parameters put forth by the federal government as they are heavily weighted in favour of a communications-as-commodity model.

The move away from a mixed private/public to a privately-operated, government regulated approach to Canadian telecommunications policy appears to leave little room for the communications-as-community participation model. This view of communications recalls the transportation model and re-emphasizes communications as a product (information) to be shuttled freely from one country to another according to the needs of corporate participants. In this sense, it points to the non-resolution of the communications debates at UNESCO around the NWICO.

The action plan does recognize the need for government intervention in the case of market failure. This suggests that it upholds the sort of distributive justice used historically to ensure access to telecommunications services in all regions of Canada. The action plan also appears to recognize the concept of the right to communicate through provisions for affordable and equitable public access through Community Access Centres; however, it does not leave room for public input into the form or function of the information highway. The approach to the information highway in Canada is concerned with providing access to information rather than access to the process of communication.

By redesigning the delivery of government services using the information highway, the GNWT and the Nunavut Implementation Commission have acted as catalysts for the development of a northern information highway. The GNWT has taken a leadership role in developing an information highway for the north through policy, funding and participation in the CRTC hearings. In 1996, the GNWT took the first steps towards implementing the idea of "government as model user" that was proposed by the federal government in its action plan (Government of Canada 1996: 10) with a call for tender to build a northern network. The process leading up to the actual installation of a digital communications network (DCN) for the Northwest Territories and Nunavut is described in the next chapter. The extent to which the DCN responds to the concerns and aspirations set out in *Connecting the North* is also discussed in relation to Innis' theory and the concept of the right to communicate.

Chapter 4

Beyond Policy Documents: A Digital Communications Network - A First Step Towards Policy Implementation

4.1 Introduction

While *Connecting the North* represents a crucial moment in the development of the information highway in the north, various individuals and organizations were already taking an active role in exploring applications for and developing a new northern communications infrastructure in 1994. This chapter begins with an overview of these developments, which can be loosely grouped into those projects designed primarily for the communications-as-community participation model and those undertakings that approached the information highway with a communications-as-commodity model. The communications-as-community participation model is expressed in the proposal put forth by TVNC and the pilot project run by Nunavut Net. Examples of the communications-as-commodity model can be found in Ntnet, the local Internet Service Providers and the structure of the Digital Communications Network (DCN) built by Ardicom Digital Communications Ltd (Ardicom) for the GNWT. The content and function the GNWT has planned for the DCN falls into the communications-as-community participation model. Menzies emphasizes the importance of infrastructure in determining how a communications technology will be used and who will be able to use it (Menzies 1996: 27). Innis' theory of communications bias supports this contention in the sense that the infrastructure is an expression of a particular monopoly of knowledge inherent to the medium (Menzies 1996: 146). In McLuhan's terms, "the

medium is the message." (McLuhan 1965: 7). An infrastructure designed primarily for the delivery of government services is intrinsically different than one required for social communications. Proposed models for the development of a northern information highway, local initiatives and the actual digital communications system adopted in the Northwest Territories offer concrete examples of how infrastructure works to affect the interface between individuals (and organizations) and the information highway. In effect, the infrastructure will reflect the governing philosophy of the communications system.

4.2 Northern Native Communications Societies Explore a Telecentre⁴⁸ Model for the Information Highway

Following *Connecting the North*, the northern Native Communications Societies (NCS) remained active in their search for a way to build a pan-Arctic network. TVNC, set up as a distribution centre for the northern NCS' broadcast endeavours, emerged as a natural leader in the development of the information highway. It is the only aboriginal-operated telecommunications infrastructure to serve the whole north, with satellite stations in Labrador, Nunavik, Nunavut, the Northwest Territories and the Yukon Territories. Acting upon suggestions made at *Connecting the North*, that the information highway should be aboriginal-owned and operated, and that partnership between government, private and public sectors was needed to share the cost and avoid duplication of

⁴⁸ "Telecentres" also known as "Community Teleservice Centres," "Telekiosks" and "Televillages" are multi-purpose centres designed to provide telecommunications, computer facilities and support services to rural and remote communities. The first two telecentres were built in Europe in 1985. In 1994, there were over 200 in operation in Australia, North America, South America and Europe (Nunavut Implementation Commission 1995b: 5).

services (Inuit Broadcasting Corporation 1995: 46), TVNC spearheaded the formation of the TVNC consortium, a consortium of existing communication providers. A multi-lateral agreement was signed between TVNC, Arctic Co-ops Ltd. (ACL) and NorthwesTel in December 1995 (Telephone Interview, Gerry Gyberson: March 4, 1996). The proposed consortium was greeted with approval from Heritage Canada, GNWT and Nunavut (Telephone Interview, Gerry Gyberson: March 4, 1996).

4.2.i TVNC Spearheads a Consortium of Northern Communications Interests

The TVNC consortium proposed an integrated solution using existing resources. It provided both for the technological communications system (community wiring, equipment, earth stations, etc.) by bringing together current telecommunications systems providers NorthwesTel, TVNC and ACL; and for content, services and systems integrators through its member organizations⁴⁹ such as IBC (Nunavut Implementation Commission 1995b: 37-39). The TVNC consortium was well-positioned to provide access to the information highway through a combination of cable and satellite technologies (Telephone Interview, Gerry Gyberson: March 4, 1996). The intention was to upgrade and/or modify the existing infrastructure to meet information highway standards. This required converting one-way broadcast satellite dishes into two-way receptors.

⁴⁹ The TVNC member organizations are: Inuit Broadcasting Corporation; Inuvialuit Communications; Northern Native Broadcasting, Yukon; OKalaKatiget Society; Taqramiut Nipingat Inc.; Native Communications Society of the Western NWT; Government Northwest Territories; Yukon College; and the National Aboriginal Communications Society. Associate members include: CBC North; Kativik School board; Labrador College; Northern Native Broadcasting, Terrace, B.C; WaWatay Communications Society; and Telesat Canada.

The TVNC consortium, reflecting its commitment to the public broadcast model, incorporated the idea of the community telecentre called for by the Nunavut Implementation Committee in a study on Nunavut telecommunications needs released in 1995. The telecentre is a multi-purpose centre which provides telecommunications and computer services and expertise to the public at little or no cost (Nunavut Implementation Commission 1995b: 5). Under this plan each community would be equipped with a "telecentre" or "telekiosk" within an existing (or currently under-construction) public location. The northern telecentres proposed by the TVNC consortium would provide information highway services such as video-conferencing (at 340 kilobits/second),⁵⁰ Internet access, telemedicine and tele-education applications as well as a wireless component for outposts. These services were to be offered as a "basic" public service. The telecentres were to be equipped with multiple ports allowing for eventual hook-up to individual homes and businesses on a pay-per-use basis (Telephone Interview, Gerry Gybersson: March 4, 1996). While the business plan closely reflected the goals and objectives set out in the final report on *Connecting the North*, the project did not move forward for various reasons which are outlined below. A concrete example of the telecentre model was to be found, however, not in the western Arctic but, in Nunavik, a region of northern Québec.

4.2.ii Nunavik Net: A Pilot Project Using the Telecentre Model

The Inuit of Nunavik share a common communications past and present with the Inuit of Nunavut. Both regions were active participants

⁵⁰ 340 kilobits per second allows for "business" quality video-conferencing (Nunavut Implementation Commission 1995b: 32).

in the development of telephone and broadcast communications services (Roth 1997: 3). The example of Nunavik Net is pertinent to information highway developments in Nunavut.

Nunavik Net was designed by the Native Communications Society, Taqramiut Nipingat Inc. Its aim was to prove that a northern network could be built using existing technologies and,

to prove the technical feasibility of the overall system by providing high availability Internet services to the people within the target communities, and the establishment of an Inuit controlled process by which they can extend the network, its services and applications as they see fit (Nunavik Net Evolution Phase I [web site], October 1, 1997).

The pilot project began in January 1996, connecting three centres, Salluit, Kuujuaq and Puvirnituk. Telecentres were opened in these communities in November 1996 and a resource person trained to staff each centre.

In August 1997, the Nunavik Net came to a halt, well short of its three-year term, and of its goal to expand the pilot project to 11 other communities. Having to meet payments of \$2,500 per month per community for Internet access proved an impossible feat with only 100 users spread over the three communities. This represented only about a dozen paying customers at \$50 per month in each community (Roth 1997: 11).

Roth suggests three reasons for the market failure of Nunavik Net: (1) the population base was too small to support the fee structures; (2) TNI might not have had the organizational infrastructure necessary to maintain this project; and (3), there are not enough people in northern Québec Inuit communities with home computers and a desire to use the

information highway at home or through a telecentre to support such an undertaking (Ibid.: 11).

Although the need for information highway services was identified by a local group within Nunavik, TNI may not have represented a community consensus. The lack of community participation may also be due to services that were provided in a format that was not deemed useful by many people in the communities, or, the population may have remained largely uninformed about the potential of the services provided. In the absence of an evaluation of the project released to the public, it is only possible to speculate on the reasons for the failure of Nunavik Net.

Nunavik Net illustrates several of the issues raised both by the IBC needs analysis and *Connecting the North*. Discussion groups and speakers at *Connecting the North* identified the importance of training and education, as well as community involvement, if new technologies are to be integrated successfully into northern aboriginal communities. Similarly, the importance of training and education as a component of access, and the necessity to ensure the technology responds to locally defined human needs have been identified by Herringer as two of three characteristics of communications. Finally, the high cost of bandwidth, long identified as problematic in the north (Koebberling 1990: 16 & 20; Inuit Broadcast Corporation 1993: 33; Inuit Broadcast Corporation 1995: 24), contributed to the failure. This is one factor that has been addressed in the western Arctic, first by the not-for-profit sector with the creation of NTnet in 1994, and then, by the GNWT through the creation of the DCN.

4.2.iii NTnet and the Growth of Local Internet Service Providers

The GNWT brought the first Internet connection to Yellowknife on a relatively slow line in 1993 (Personal Interviews, Gordon Robinson: June 4, 1998; Bob Johnson: June 4, 1998). Other people in Yellowknife were interested in bringing in more and faster Internet connections for business, education, and general interest. This resulted in the formation of NTnet and eventually the growth of a few local ISPs in Yellowknife and then in some of the larger communities such as Inuvik, Rankin Inlet, Iqaluit, Fort Providence and Cambridge Bay.

In June 1994, prior to *Connecting the North* and the development of the telecentre model by TVNC, the NTnet Society was created with the main objective of bringing Internet service to the north (Personal Interview, Bob Johnson: June 4, 1998). The founding members came from a variety of backgrounds, including software development and education, as well as several individuals from Yellowknife who ran small bulletin boards. All members were interested in making available better and more connections in the north. They were successful in obtaining some infrastructure development money from CANARIE and established their first line by December 1994. The GNWT soon came on board as a corporate client. What began as a volunteer operation developed into a hybrid organization with a not-for-profit arm to promote the goals of NTnet, using proceeds from the profit-making arm (Ibid.).

The creation of NTnet is significant for two reasons: (1) it allowed for increased experimentation with information highway services by government and private corporations; and (2), it opened the door for the development of local ISPs. Prior to NTnet, local ISPs had to connect to the

Internet directly through the south, thereby greatly inflating fees as long-distance charges had to be paid to reach the connection.

ISPs in the north are generally operated as divisions of computer distributorships and are backed by Aboriginal Development Corporations.⁵¹ NTnet services the following Yellowknife ISPs, which are all divisions of computer distributorships: InterNorth Microage, Tamarack Computers, Arctic Data, NETSOS, Sympatico and SSI Micro, which acts as a server for the ISP in Rankin Inlet called Sakku Arctic (Ibid.). Teitelbaum characterizes SSI Micro as one of the largest PC distributorships in the Arctic and "the region's most aggressive Service Provider" (Teitelbaum 1997: 242). The local ISPs that are not a division of a computer distributorship generally do not do well financially (Personal Interviews, Bob Johnson: June 4, 1998; Ken Todd: June 5, 1998). The typical owners of ISPs in the north are entrepreneurs who own a variety of businesses (Teitelbaum 1997: 286) and are located in communities with populations above 1,000.

The growth of Internet use in smaller communities has been slowed by the high cost of long distance dialing into an ISP. With one exception, local ISPs primarily serve the community in which they are located. Neighbouring communities can have dial-up access, but ISPs have not invested the necessary capital to link smaller communities. As private enterprises, their first priority is to develop a viable market, and the large outlay required for a direct line⁵² into a community requires the volume

⁵¹ Aboriginal Development Corporations were established in the NWT and Nunavut to use a portion of land claims revenues to develop northern aboriginal businesses.

⁵² As an example of the cost entailed, the ISP in Rankin Inlet represents an investment of approximately \$70,000 which is expected to be recouped within two years of operation (Personal Interview, Mary-lee Sandy: June 2, 1998). It is noteworthy that these costs have been recouped relatively quickly in part due to several government accounts.

of traffic expected in larger communities. In addition to a population base above one thousand, communities with local ISPs also generally have an active business community (due to natural resource development) or are administrative centres for government services. As discussed in Chapter Two, communities with greater business and government activity have better telecommunications services. The ISPs, developing as private businesses in a market economy environment, have followed the typical pattern of communications development for Canada's north.

The overall growth of ISPs in the north has been hampered by two primary factors: cost, and the lack of an efficient telecommunications system. An efficient telecommunications system could provide a cost-effective manner to deliver Internet services to many small communities in one region. This in turn would allow for the expansion of a customer base. The DCN would appear to offer a solution to this problem from a technical perspective. The potential effect of the DCN on local ISPs in terms of competition for customers is discussed below.

Local ISPs have played an important role in bringing services to at least the larger more economically active communities in the north. In some cases they have taken an active role in partnering with local organizations to support the development of services. For example, SSI Micro played a key role in the development of NTnet by providing long term credit to the project (Personal Interview, Bob Johnson: June 4, 1998), and Sakku Arctic Technologies has supplied the Leo Ussak Elementary School in Rankin Inlet with an Internet connection since 1995.

The arrival of the DCN has brought an Internet dialtone to all 58 recognized NWT communities, but it is not yet clear who will provide access to Internet services, nor how public access will be provided. It is

possible that in communities where there is no ISP, the GNWT would step in to partner with Ardicom to provide ISP services (Personal Interviews, Gordon Robinson: June 4, 1998; Ken Todd: June 5, 1998). NTnet Society is also considering the possibility of investing in some smaller communities; however, they are more likely to have to invest in more connections and ultimately in greater bandwidth to match the growing demand for services (Personal Interview, Bob Johnson: June 4, 1998). Founding member of NTnet, Bob Johnson, indicates that the NTnet Society will reassess the situation once the DCN is operational (Ibid.)

4.3 The Digital Communications Network - A Government Funded, Privately Operated Network

At about the time of *Connecting the North* in November 1994, the GNWT approved a new informatics policy. The catch phrase to describe the policy was "anything to anyone from anywhere" (Personal Interview, Gordon Robinson: June 4, 1998). This new policy was the result of a lengthy committee process involving the departments of Education, Culture and Employment; Health and Social Services; Renewable Resources (now Resources, Wildlife and Economic Development); Public Works and Services (responsible for the internal government data network); and, the Financial Management Board Secretariat, as the central agency responsible for managing government resources, human resources and information. Telecommunications infrastructure deficiencies were identified by the committee members, particularly, the inefficiency of the low-speed internal network which connected only 11 communities (eventually extended to 16). The issue of telephone service

was also discussed as 6 communities had no telephone service and a number of communities did not have fax capability.⁵³

A part of that policy-making process was *People: Our Focus for the Future*, published by the Department of Education, Culture and Employment in September 1994. This document outlines the GNWT's vision of community networks for learning and health, described in detail in Chapter Three. The vision of community networks provided the philosophical basis for a decentralized government supported by a single, digital communications network. The DCN was built as a government-wide initiative, headed by the Financial Management Board Secretariat with the Departments of Health and Education providing the principle impetus (Ibid.).

In 1995, Health and Social Services, as well as Education, Culture and Employment used the TVNC consortium model in a business plan produced by the Nordicity Group to prove the cost-benefit of a DCN for the Northwest Territories. With the business case proven, the vision of the DCN was approved by the Financial Management Board with the understanding that the Departments of Health and Education combined were prepared to commit 70-80% of the cost to design and build a digital communications network⁵⁴ (Ibid.).

In May 1996, the GNWT published its request for proposals to build the DCN. The conditions stipulated that a majority aboriginal-owned

⁵³ The CRTC eventually put pressure on NorthwTel in Telecom Decision 93-20. The CRTC demanded the upgrade of services throughout the NorthwTel region and extension of services to the six communities without service within three years. Consequently all 58 NWT communities received telephone service by November 1997 (Personal Interviews, Gordon Robinson: June 4, 1998; Peter Crass: June 4, 1998).

⁵⁴ The Department of Justice has since made application to join the network and will share in the cost of maintaining the system. Other departments are expected to join the network over time (Personal Interview, Gordon Robinson: June 4, 1998).

company would be preferred. No specific indications of design were given; instead, a functional definition was used. Technical requirements stipulated only that it be an interoperable network for all 58 recognized communities in the Northwest Territories with image, voice, text, video-conference and Internet capacity. The call for tender was not for a private government network, rather, the GNWT was to be the "anchor tenant." The DCN would be made available to the public and to the marketplace for potential business development by the company designing and operating the network (Ibid.). In this way, the GNWT ensured universal service to all 58 recognized communities while supporting the Canadian telecommunications model of supplying telecommunications needs as a public service through a private corporation.

The GNWT received 20 responses to the tender. Finally, three bids were made, although one was not compliant with the conditions of tender (Ibid.). A second offer was based on the existing telephone system of NorthwesTel, and a third on a broadcast platform using TVNC's network. The addition of Cancom⁵⁵ (traditionally a strong supporter of aboriginal broadcasters) to the TVNC consortium created tensions that eventually resulted in a new configuration of players. Arctic Cooperatives Limited (ACL)⁵⁶ and NorthwesTel, along with the Northern Aboriginal Service Company (NASCO)⁵⁷, formed a company called Ardicom Digital

⁵⁵ CANCOM is the Canadian Satellite Telecommunications delivery system .

⁵⁶ Arctic Cooperatives Limited is a federation of 41 NWT community-based Co-ops with a membership of 11,000 households. The Co-ops provide service in the following areas: retail stores, hotels, petroleum distribution, taxi and cartage, northern arts and crafts and cable TV systems.

⁵⁷ The Northern Aboriginal Services Company uses a cooperative approach to increase the participation of northern aboriginal peoples in business opportunities. NASCO groups the following four Northern Aboriginal Development Corporations: Nunasi Corporation, Inuvialuit Development Corporation, Denendah Development Corporation and the Yukon First Nations Development Corporation.

Communications Inc. (Ardicom). TVNC and Cancom formed Drum Communications. Both Ardicom and Drum Communications were seriously considered, with the contract finally awarded to Ardicom⁵⁸ (Ibid.).

4.3.i Ardicom and the Frame Relay System

After six months of negotiations, a five-year contract was signed with Ardicom April 25, 1997 (Ibid.). The \$25 million contract requires that Ardicom build a network with nodes in all 58 communities (Teitelbaum 1997: 278). The Ardicom system uses an innovative combination of satellite and frame relay technology with existing microwave, telephone and cable modem delivery systems (Ardicom Home Page: January 6, 1999).

Frame relay is a little used network system (Personal e-mail, Natalie Leonard: August 28, 1998)⁵⁹ offering high speed (56 kilobits/second to 1.54 megabits/second) digital communication that sends information in packets or bunches. Used extensively for data transmission, it is unusual to integrate audio and video applications into the system (Personal e-mail, Natalie Leonard: August 28, 1998).⁶⁰ Frame relay is among the least

⁵⁸ This decision surprised many as there was an expectation that the government, wanting to make maximum use of the existing telecommunications infrastructure would order the companies to work together. TVNC was recognized positively as a communications leader and advocate of northern aboriginal communications objectives, although it lacked the infrastructure required to run the system.

⁵⁹ Nathalie Leonard, P.Eng., a consultant for Computing Devices Canada, working with the GNWT Department of Health and Social Services to set up some the telemedicine applications on the DCN, was only aware of two other telemedicine projects using frame relay: one in Alaska using satellite technology, and another land-based telemedicine and data transmission project with the United States military.

⁶⁰ According to Leonard, the system is well adapted to multi-applications but poses difficulties for video synchronization and video-conference as software manufacturers do not test frame relay with satellite transmission.

expensive network systems available. The more commonly used ATM or dedicated line networks are very expensive and can only be justified where there will be high traffic and heavy utilization, such as for southern urban centres (Ibid.). In a frame relay system all data share the same pathway,⁶¹ rather than individual points having separate pathways. This leads to significant cost saving. In effect, all 58 communities that will be connected to the network will share the cost of the long-distance charges to connect to the "hub" in Yellowknife where all lines are routed through a single line to the back bone of the Canadian information highway "CA@Net" (Ardicom: December 1997). The circuits are meshed in a particular way so that the number of physical connections needed to link points together is reduced. For example, a direct privately leased line would require 45 circuits to link together ten communities. Frame relay, using meshed connections, requires only ten circuits to link ten communities (Personal Interview, Ken Todd: June 5, 1998).

The primary advantage of the frame relay system over a dedicated privately-leased line is shared cost. With a dedicated line, there are service charges for the mileage between points, whereas with the frame relay system all points are hooked into what is essentially a grouped circuit or "cloud" and transmission cost is shared. While there is no charge for the mileage between points, Ardicom charges, in addition to the connection charge, for the minimum amount of bandwidth needed. Prices are set according to the type of data sent. Straight text that does not involve a

⁶¹ In a December 1997 document from Ardicom, NorthwesTel indicates that it regularly monitors for congestion, and in the case where a packet is discarded, this would translate into a delay rather than a loss of data or the network connection.

time-sensitive feature such as chat⁶² is the least expensive data. Live video-conferencing that must be delivered in real time, and therefore, requires priority service is the most expensive. The customer subscribes to a minimum bandwidth with provisions for a larger bandwidth on an as-needed basis.

Following some initial delay in the proof of concept (Personal Interview, Gordon Robinson: June 4, 1998), Ardicom moved ahead rapidly with its installation schedule. By October 1998, it had completed installation of the DCN in all 58 communities (E-mail correspondence, Ken Todd: January 6, 1999). The second step of actually hooking up the network to the various communities is well underway. In June 1998, upgrades of Municipal Area Networks (MAN) by NorthwTel and ACL was ongoing in 33 communities, Network testing was completed in 19 communities, and "live" traffic was operating among 8 communities for 5 different customers (Ardicom: June 5, 1998). Ardicom provides three empty sockets in each community: one for an education facility, one for a government facility and one for a health facility. The GNWT and/or the end users in the various facilities are then responsible for covering the cost of the necessary hardware (LANs, routers, modems), copper wiring and line charges (Personal Interview, Peter Crass: June 4, 1998).

The contract between Ardicom and the GNWT, while providing for the installation of frame relay connections between communities did not provide for either the local connections or the Internet service. This has led to increased (and unexpected) costs to the Departments of Health and Education (E-mail Correspondence, Sandy McAuley: August 17, 1998). A

⁶² Chat allows two or more people to "converse" in real time by typing messages to each other -- a sort of e-mail conference .

recent reorganization of the Department of Education, Culture and Employment is intended to help address this problem (Ibid.); however, the combined effect of time delays and added costs has resulted in a certain amount of impatience, and at times skepticism, among potential users of the DCN (Personal Interviews, Bill Belsey: June 1, 1998; Linda Pemik: June 2, 1998; Bob Johnson: June 4, 1998; Lorraine Thomas: August 20, 1998). How the DCN is perceived in the various communities of the NWT will largely determine its success as a communications tool for the population as a whole.

The decision to award the contract to Ardicom as opposed to Drum Communications was an important decision. The bid from Ardicom was significantly lower than that of Drum Communications (Personal Interview, Gordon Robinson: June 4, 1998). Gordon Robinson, Deputy Secretary of Audit, Budgeting and Evaluation at the Financial Management Board Secretariat of the GNWT identifies three possible reasons for the low bid from the NorthwesTel group: (1) they had more infrastructure in place; (2) they were more confident they could sell other services through the network; and 3), they may have bid low in an effort to protect their market (Ibid.). The higher cost of the Drum Communications bid can be attributed, in part at least, to the cost TVNC would incur to reconfigure its infrastructure which had gone digital in April 1996, but that had not been configured for two-way communications (Roth 1997: 14).

Although the decision in favour of Ardicom rather than Drum Communications appears to have been primarily due to financial considerations, it also indicates that in terms of the GNWT, the information highway is perceived to fit more easily into the model of the

Canadian telephone system than that of the Canadian broadcasting system. This has repercussions in terms of how the information highway will be perceived in northern communities. The history of the development of broadcasting and telephone services in the north described in Chapter Two, indicates that in terms of self-determination, broadcasting supplies the more successful model. NorthwesTel as the monopoly supplier of telephone services was perceived to be unresponsive to the needs of northern users (Koeberling 1990: 21; Inuit Broadcasting Corporation 1993: 33; Inuit Broadcasting Corporation 1995: 39-40). TVNC, on the other hand, represents a successful northern aboriginal broadcast network (Inuit Broadcasting Corporation 1995: 46). These factors could be expected to impact on how the new technology will be received by the public.

In assessing the GNWT's digital communications network in relation to the history of the development of communications technology in the north, it becomes clear that the DCN is unique in that it was initiated by the territorial government. While there are precedents for provincial governments developing crown corporations to supply telephone service in the Prairies in the early 1900s (Winseck 1995: 152-154), this is the first time a territorial government has undertaken to provide a universal communications service. This would seem to be a reflection of the current political climate in Canada as evidenced in the following statement by then Federal Minister of Industry, John Manley:

The government believes strong regional economies are the building blocks of Canada. To be effective, economic policy must recognize the differences between regions (*Building a More Innovative Economy*, 1994: 17).

This situation is further accelerated by the separation of the NWT into two Territories. As discussed in Chapter Three, both the GNWT and the Government of Nunavut have identified the need for an information highway infrastructure in the north to support economic and administrative objectives. In this way, the GNWT, and indirectly, the Government of Nunavut, have indicated their support for the federal government's intention to develop the information highway within the market economy model.

4.3.ii A Shift in Telecommunications Development Funding

As discussed earlier, Roth and Menzies indicate that the federal government strongly supports private enterprise in the development of the information highway. The GNWT has chosen to follow this path as well. In order to be considered a serious contender for the contract to implement the DCN, TVNC had to fit its nature as a public broadcaster into a private enterprise prototype. While the choice of Ardicom for the DCN project may be a further indication of the shift in public policy from a mixed model for communications to a private enterprise model, it has been suggested that the choice of Ardicom is the combined result of a lower bid, politics and social relationships (Roth 1997: 15).

Lorraine Thomas, acting executive director of IBC at the time of *Connecting the North* identifies two situations that acted as deterrents to Native Communications Societies successfully gaining control of the design of the northern information highway infrastructure. (1) Little direct federal funding has been made available for the development of the information highway in the north. (2) Some sort of pan-Arctic working group did not emerge to spearhead the organization and centralization of

research and lobbying efforts (Telephone Interview, Lorraine Thomas: May 13, 1998). The lack of direct federal funding for the information highway in the north seems to further confirm a shift in Canadian policy away from a mixed model approach towards a market economy model.

Federal financial support of the information highway has been handled differently than that of either telephony or broadcast media. In the past, the federal government has been the traditional financial supporter of Native Communications Societies (broadcast services) and of experimentation (satellite services) and development of new communications technologies (telephone services) in the north. For the information highway, though, federal funding for infrastructure development was given to CANARIE to distribute to projects according to CANARIE's objectives -- objectives that are heavily influenced by its powerful corporate membership. Two northern projects (NTnet and Yukon Net) were funded through CANARIE under a program called Operational Networks Products and Services Program, now called Technology and Application Development (TAD). In addition, in 1997 CANARIE launched a Pilot Project for Aboriginal Networking (PPAN). The PPAN distributed a total of \$1.25 million to seven aboriginal projects, of which five were based in, or related to, the north (CANARIE [web site} August 20, 1998).⁶³ This money can be used for infrastructure development or content development that supports networking. Some other federal funding has been made available in relation to the information highway for research,

⁶³ One of the projects, Waseskun Community Network is not based in the North but is designed to foster healing in both Inuit and First Nations Peoples in northern and eastern Québec. Waseskun House, located in Montreal and Kahnawake, began as a half-way house for prisoners and now provides supervision, training, counselling and information services to nearly 75 aboriginal communities.

business development, training, content development and free public access. Programs which could directly benefit northern aboriginal peoples include: student employment opportunities, regional business development resources, Industry Canada support for the creation of aboriginal web sites, and the Community Access Program (Government of Canada 1996: 18-20).

Although all federal government programs cited above have value in terms of the northern information highway, it is the Community Access Program that seems to be most crucial to making the information highway infrastructure in the north a relevant community-based tool. In 1995 the federal government set up the Community Access Program to fund the development of centres for public access within rural and remote communities. The role of Community Access Centres is discussed below in relation to the DCN.

This brief examination of federal funding for the information highway reveals that there is no currently existing federal government subsidy program that is equivalent to the NCAP, NCP or NNBAP for information highway infrastructure development in the north. The role of stimulator of telecommunications development has fallen, in this case, to the GNWT. The GNWT's choice to adopt an "anchor tenant" model for the DCN reflects both its need for a single communications network and its commitment to support the development of private enterprise in the north. Local ISPs, though, have questioned the GNWT's commitment to a single information highway services provider as it jeopardizes the survival of local ISPs whose businesses have largely been supported through government corporate accounts.

4.3.iii Ardicom and Local Internet Service Providers

Until the arrival of the DCN, government offices requiring Internet service bought their accounts through local ISPs. Faced with the loss of major clients⁶⁴ as government departments are transferred to Ardicom's network, local northern ISPs are busy looking for ways to replace that lost revenue. Plans range from running their own digital system against Ardicom, to marketing their ability to custom design services (Teitelbaum 1997: 286). A meeting referred to as "acrimonious" by Gordon Robinson, was held in December 1997 with government officials, Ardicom and northern ISPs to discuss the implications of a frame relay system. The meeting did not seem to meet the expectations of any participants (Personal Interviews, Gordon Robinson: June 4, 1998; Ken Todd: June 5, 1998; James Sandy: June 2, 1998). This issue is clouded by mixed sentiment on both sides. On the one hand, there is a feeling that some ISPs were banking on increased government need and the failure of the DCN. On the other hand, there is a real need to support private entrepreneurship and small business in the north. Support for the DCN in northern communities could be affected if the DCN is perceived to be another monopoly communications corporation that leaves no room for local enterprise.

The GNWT, while committed to supporting local enterprise, is not prepared to deal with the potential for uneven service in buying Internet services locally (Personal Interview, Gordon Robinson: June 4, 1998). A seamless network is required to ensure coherent communications and

⁶⁴ This represents a major revenue loss. At Sakku Arctic, for example, corporate fees (165 accounts) cover the cost of day to day operations (Personal Interview, Mary-lee Sandy: June 2, 1998).

information management services. As Gordon Robinson points out, government does not buy "retail," it buys "wholesale." The logic for buying government supplies from private enterprise rather than running its own supply shop is to ensure that there is an office supply store in town for all businesses. As anchor tenant of the DCN, the GNWT is ensuring that all 58 NWT communities have access to information highway services (Ibid.).

Although Ardicom is not in direct competition with local ISPs for the Internet Service market, not only will it take over government clients, it could potentially take over the lion's share of the corporate market. Ardicom is in the wholesale business so its service is likely to appeal to large corporations with several offices or service centres across the north. Ardicom acts as a conduit for Internet traffic and cannot offer e-mail or web site services. Internet access for the Ardicom office is provided by NTnet (Ardicom, Home Page: January 6, 1999). Ardicom provides a variety of information highway services, primarily to the corporate client but also to professionals such as lawyers (Personal Interview, Ken Todd: June 5, 1998). This leaves the ISPs with a limited market of individual and small business accounts.

The future of local ISPs would seem to reside in diversification. One option would be to offer a value-added service through on-line content, focusing perhaps on issues and themes pertinent to northern residents. The ISP in Rankin Inlet already has a few dial-up accounts from Saskatchewan, Manitoba and the Baffin region because clients want to be located at "Arctic.ca" (Personal Interviews, James Sandy and Mary-lee Sandy: June 2, 1998). Another option is to provide Internet service to an entire region. Buying access from Ardicom and using the DCN as a way to deliver

services to an entire region represents one possibility (Personal Interview, Ken Todd: June 5, 1998)⁶⁵.

An example of a local ISP offering Internet services to an entire region is Polarnet in Cambridge Bay which is attempting to provide service to the Kitikmeot region through direct to satellite hook-ups. Supported by CANARIE funding and the Kitikmeot Aboriginal Development Corp., Polarnet intends to set up ISPs in each community (Personal Interviews, Robert Tookomez and Brian McLeod: June 2, 1998). Initially viewed as an expensive solution, direct-to-satellite offers high speed bandwidth and avoids some of the technical difficulties encountered in a mixed land/air system. As Ardicom's frame relay network may not offer savings which are deemed sufficiently substantial by the ISPs,⁶⁶ and because the demand for higher bandwidth is expected to grow very rapidly Bob Johnson of NTnet suggests that the DCN may in fact drive the ISP market to look for other server options in southern Canada and through satellite hook-ups (Personal Interview, Bob Johnson: June 4, 1998). Another factor which could potentially encourage the development of satellite technologies is the federal government taking action on its stated support for the development of satellite and wireless technologies for northern communities (Government of Canada 1996: 24).

⁶⁵ In May 1998 SSI Micro and Nunanet were the first two ISPs to switch from dedicated privately-leased lines to Ardicom's frame relay network (Ardicom [home page] January, 6 1999)

⁶⁶ Based on June 1998 pricing an ISP using frame relay would pay roughly \$300 less per month than for a direct privately leased line. This is assuming that a single ISP is paying for a switch both locally and in Yellowknife (Personal Interview, Greg Fandrick: June 5, 1998). However, several ISPs could use the same switch in Yellowknife which would lower their costs. This may not represent the savings ISPs were expecting. The cost for the DCN is high due to the fact that 52 of the 58 communities connected to the DCN require satellite up links (Ibid.).

Ardicom's network may prove to have short-comings but it does at least provide a platform on which Nunavut and the NWT can experiment with decentralized government services supported by a digital communications network.⁶⁷ While there are pending applications from the Departments of Justice and Resources and Wildlife and Economic Development with regards to major projects using information highway services, the Departments of Health and Education, as driving forces behind the project, can experiment with the delivery of government services via the DCN. With a physical infrastructure well on its way to completion, the GNWT is now concerned with developing content, primarily in the form of government services.

4.4 Beyond Infrastructure - What Content Will Be Provided Through the Digital Communications Network?

The re-thinking of the delivery of government services is a direct result of the split of the NWT into two territories in 1999. The Community Learning Network model, discussed in Chapter 3, represents the vision driving the re-organization of government services, while the DCN is a communications tool designed to facilitate the delivery of such services. This entails ensuring that the internal government database be made available to government workers throughout the territory, as well as ensuring that government services are delivered to the public. Both aspects are expected to bring a reduction in expenditures, as well as improved services to the public, and an improved support system to

⁶⁷ The Ardicom contract allows for partition but essentially binds both NWT and Nunavut to the 5-year contract. Nunavut does have the option of adding a "hub" in Iqaluit but it would require upgrades to their switch (Personal Interview, Gordon Robinson: June 4, 1998).

professionals and field workers. As the primary users and suppliers of content to the DCN in its initial stages, the Department of Health and Social Services and the Department of Education, Culture and Employment are taking steps to create a coherent communications and information management strategy for the whole territory. This entails implementing the Community Networks Vision for a "whole person, whole community" approach to providing health and education services. A part of that process requires the development of Community Access Centres to ensure free public access to on-line government services and to the Internet. Several community-based initiatives that provide interesting models for introducing information highway technology are described below. The DCN has been designed to bring improved government services to 58 communities in the NWT and Nunavut, services that are expected to bring advantages in terms of quality of life and in terms of fiscal savings.

4.4.i The Community Networks Vision Applied Through the Digital Communications Network

"Network 99" is the first phase of a multi-year plan to create a coherent information management and communications plan for Health and Social services. As part of the Community Networks vision, Network 99 is designed with the intention of adopting a whole body/whole community approach to health care that considers all aspects of a client's life rather than focusing on specific symptoms (Department of Health and Social Services June 3, 1998: 4). Health and Social Services has approached the question of developing and introducing DCN supported services and programs strictly on a user need basis (Telephone Interview, Ed Norwich: May, 1998). This means that any division of the Department or region it

serves that wants to take advantage of the DCN must put forward a proposal proving need for the project and that particular division's capacity to make the project work. This approach was adopted to encourage adapting the technology to meet human need rather than imposing a top to bottom systems approach which could result in resistance to the technology and perceived failure of the technology as well as in a loss of personal initiative on the part of staff. Other examples of encouraging "grassroots" movements to make use of the technology can be found in some community initiatives within the field of education and discussed below. Menzies suggests that an approach that puts the technology at the service of the people involved guarantees that the information highway will be more than a commodity distribution system (Menzies 1996: 53).

The first objective is to use the DCN to link all health care and social service providers in the NWT using e-mail, an intranet⁶⁸ for client information and the Internet by the end of 1998. The purpose is to allow workers to make decisions on the basis of the most complete and current information available. It will also allow for support networking among workers, and opportunities to deliver improved professional development workshops and courses (Department of Health and Social Services June 3, 1998: 1-5).⁶⁹

The issue of public access points is being handled by the Library Services Division of the Department of Education, Culture and Employment. Following a consultation process involving meetings with

⁶⁸ An intranet involves using Internet technologies on a closed internal network (Pavlik 1998: 376).

⁶⁹ For more details see Appendix I

government officials, librarians and library users, held in regional centres across the NWT between December 1997 and January 1998, the Department presented a series of recommendations regarding public library services. A single library system will be maintained for both territories until Nunavut requires its own system. Public, municipal, college and school libraries will be integrated in those communities that choose to do so. Libraries will take a leadership role in offering public access to the Internet. Funding to carry out this project is expected to come from a variety of sources including corporate sponsorship and the federal government's Community Access Program (Information Networks 1998: 1-5). In fact, the GNWT has been negotiating on an ongoing basis with the federal government, in conjunction with the DCN project, to administer the Community Access Program throughout the NWT in order to ensure a Community Access Centre for each of the 58 communities connected to the DCN (Personal Interviews, Peter Crass: June 4, 1998; Gordon Robinson: June 4, 1998). It is important to note that the Community Access Program, while based on a community telecentre model, is concerned primarily with providing Internet access and delivering government services, as opposed to an array of information highway services such as video-conferencing (Government of Canada, [Community Access Program] August 10, 1998).

4.4.ii Community Access Centres: Ensuring Free Public Access to Government Services and the Internet

The first 10 Community Access Centres set up in the NWT were coordinated by the Department of Education, Culture and Employment Information Networks and met with varying degrees of success (Personal

Interview, Gordon Robinson: June 4, 1998). Several other computer and multi-media pilot programs set up in communities failed. Sandy McAuley identifies two principal reasons for the failure of such projects: the lack of local expertise (due to insufficient training and/or high staff turnover),⁷⁰ and the lack of affordable and rapid access to replacement parts in the case of equipment failure.⁷¹ Consequently, one of the first priorities is to ensure that there are user/facilitators in every community and a plan for ongoing training. This is being addressed through: (1) the Information Networks' Development Project which includes upgrading hardware and training in troubleshooting with Information Technology for teachers;⁷² (2) a Department of Education Business Plan which recognizes the importance of training at a grassroots level; and (3), the development of an Information Technology Curriculum in the form of in-service and pre-service training and workshops (Personal Interview, Sandy McAuley: June 4, 1998).

The Department of Education, Culture and Employment has been experimenting with distance learning projects and communications technology for some years. Several projects in the Baffin region are exemplary of the sort of experimentation that was driven by a recognized need for improved communications technology. In 1987 a remote Intranet

⁷⁰ The high staff turn-over rate (20-25%) is a problem throughout the North in terms of creating and maintaining coherent programs (Personal Interview, Sandy McAuley: June 4, 1998).

⁷¹ Jacob Modayil, Technology Coordinator for the Dogrib School Division explains that it can take 2 to 3 weeks to get a replacement piece to Edzo which has year round road access and is only 200 km from Yellowknife. If one of the schools in a community with fly-in access only requires assistance they may have to wait up to 2 months for a scheduled visit from the Technology Coordinator to make the repair (Personal Interview, Jacob Modayil: June 5, 1998).

⁷² This program is delivered using a mixed traditional and distance education format (Personal Interview, Sandy McAuley: June 4, 1998).

system sponsored by Bell was used to connect schools in the region. In 1989, a school in Grise Fiord became an Apple Centre for Innovation. Four schools in the region eventually participated in the Apple Global Network which provided a graphic interface allowing for the use of Inuktitut. Other similar projects have been carried out in the north; however, the lack of a pan-Arctic network meant that teachers and students were generally unaware of projects in other communities.

In most cases, distance education projects have been offered as short-term pilots, relying on print materials and some telephone support. Sometime in 1999, McAuley expects one or two core courses to be offered at the high school level over the DCN in association with the Alberta Distance Learning Centre, or through a teacher located somewhere in the NWT. This would not entail daily video-conferencing, which remains too expensive for current budgets, but would allow for occasional video-conferencing, along with telephone and text-based support delivered online. McAuley sees the DCN and distance education as an opportunity to develop collaborative programs that link students, teachers and experts, thus blurring the distinction between the traditional classroom and the virtual classroom (Ibid.).

4.4.iii Community Initiatives

Community involvement remains an essential issue in terms of the DCN meeting the needs of local residents. Some communities have taken their own initiatives to develop and adapt opportunities and strategies for digital communications. The form these initiatives take is largely dependent on how a project is championed and by whom. Experience

shows that projects that are initiated by local individuals or organizations and that can offer stable ongoing support are more likely to succeed.

The Dogrib School Board,⁷³ for example, has taken a pro-active approach to the introduction of information technology into its schools. The Board has hired a Technology Coordinator who works closely with the teaching staff, ensuring that they are comfortable with the technology before it is used in the classroom. Schools are not yet connected to the Internet,⁷⁴ but an inter-community network is used primarily as an administrative tool. In preparation for Internet access, students now have accounts on the intercommunity network, allowing them to communicate with other students in the district. Access to new communications technology has been introduced relatively slowly and with deliberate goals, in an attempt to respond to community needs and to build a "computer/new technologies culture" in the schools (Personal Interview, Jacob Modayil: June 5, 1998).

Another example can be found in the Community Access Centre in the hamlet of Rae, also in the Dogrib School Division. This project was initiated by parents who wanted their children to have ongoing and out-of-school access to the information highway (Ibid.). The demonstrated enthusiasm of the parents for the new technology has also contributed to the successful development of a computer/new technology culture in the Dogrib schools.

⁷³ The Dogrib School Division includes the hamlets of Rae, Edzo, Whati, Rae Lakes, Snare Lakes and Dettah. Dettah is a half-hour drive from Yellowknife. Rae and Edzo are about a two- hour drive. The other communities have no road access except for some winter roads.

⁷⁴ Long distance charges were deemed too high by the school board prior to the DCN. Access will be made available to all hamlets sometime in 1999 (Personal Interview, Jacob Modayil: June 5, 1998).

A third example of the way communication technology can be introduced to a community is the Rankin Inlet Community Access Centre, Igalaq (window in Inuktitut), initiated by Bill Belsey, a long-time resident and educator in the north, and head of the elementary school computer program. The project has successfully brought together local community organizations and private enterprise through the federal government's Community Access Program.⁷⁵ Located in the elementary school it brought excellent computer equipment, a scanner and a digital camera into the school, where it is used during the day by the students, and is turned over to the community for use in the evenings and on weekends. Igalaq is used frequently with roughly 500 e-mail accounts for a population of 2,000. As a volunteer organization with two trained youth who work alternate evenings and weekends, statistics regarding usage are sketchy but Belsey estimates that on average there are 20 users/evening with a maximum recorded at 80 (Personal Interview, Bill Belsey: June 1, 1998).⁷⁶ The success of Rankin Inlet's Igalaq can be attributed to the following: it was initiated by a strong local champion; it moved ahead only with support from local community organizations and private corporations; and, there was already a "computer culture" integrated into the school with a broad base of students, and increasing numbers of teachers, who are comfortable and interested in the technology.

The success of Igalaq has largely been limited to the children and youth of the community. The (Adult) Community Learning Centre in

⁷⁵ The federal government's Community Access program offers matching funds up to ... for the development and implementation of a Community Access Centre.

⁷⁶ On the two evenings that I attended the centre there were 23 children under 12 and 3 adults on one night, and 8 teenagers and 2 adults on the other. Only one of the adults were Inuit. This was early in June at the end of the school year, attendance is apparently higher in winter.

Rankin Inlet wishes to address that issue, and plans to offer a basic "Introduction to the Internet" course in the future (Personal Interview, Linda Pemik: June 2, 1998). As Linda Pemik, past Coordinator of the Community Learning Centre and currently the Coordinator/Tutor of a distance education program at Kivalliq Arctic College explains, use of the Internet by aboriginal adults is limited, in general terms, by their lack of exposure to computers, and the preponderance of text-based English language information available on-line that does not reflect their life in the north.

People need a real reason, a personal reason, to use the Internet (Ibid.).

Pemik suggested that technology offering video-conferencing, primarily for social networking, along the lines of the Tanami network demonstrated at *Connecting the North*, would make a big difference in terms of who would use the technology and how it would be used (Personal Interview, Linda Pemik: June 2, 1998). Jim Bell, writer and web site manager for Nunatsiaq News, agrees with this view (Teitelbaum 1997: 284).⁷⁷ Video-conferencing offers a practical extension of the Inuit oral tradition which has long relied on word of mouth to keep in touch with relatives throughout the north.

4.5 Communications—as-Community: A Northern Aboriginal Tradition

Fred Lepine, a metis writer, musician and cyberphilosopher living in Hay River, NWT points out that the information highway while

⁷⁷ Nunatsiaq News is a weekly newspaper published in Iqaluit.

mimicking “traditional patterns of (Aboriginal) communication...like gossip...[or a] mocassin telegraph” (Lepine in Zellen 1998: 4), poses a threat to traditional aboriginal thinking⁷⁸ as it imposes a linear, goal-oriented thinking pattern.

The Inuit have their own web...I don't need a computer to know what is happening (Ibid.: 284).

While a number of people in both northern and southern Canada would agree with this statement, it is significant that it seems to reject a particular medium rather than the notion of a network. Brian McLeod, Manager Business Development, Nunavut Tunngavik, identifies as the principal weakness of the DCN the fact that it presupposes the computer as the main access point (Personal Interview, Brian McLeod: June 2, 1998). Computers tend to be viewed as a tool for (southern) technocrats in (Bell in Zellen: 1998: 6). If the computer is perceived to be a work tool rather than a communications tool then it is less likely to be adopted as a universal means of communication for social or interpersonal purposes. In this sense, the information highway has the potential to create a new “monopoly of knowledge.”

4.5.i Adapting Linear Thinking to Acoustic Space

Past experience with communications technologies have demonstrated that they can have a significant cultural impact. As discussed in Chapter Two, the introduction of writing provides an example of the use of communications technology as a colonizing agent through a strictly controlled monopoly of knowledge. Learning to read and write in a

⁷⁸ Lepine describes traditional aboriginal thinking as “round thinking” (Lepine in Zellen 1998: 4).

particular northern aboriginal language resulted in marginalization from mainstream Canadian society and due to the development of three different writing systems did not work as a unifying force among northern aboriginal peoples.

This situation was reversed through the use of broadcast media as northern aboriginal peoples had access to the means of production (monopoly of knowledge) and were able to successfully expand over space through a pan-Arctic network (TVNC). The network acted as a centralizing force, representing an example of the role of the right to communicate in the realization of self-determination for colonized populations. It could be said that to a certain extent written communication symbolizes the colonization of Inuit culture while oral-based communications have come to symbolize Inuit self-determination. As suggested by Brian McLeod's comments, this has serious repercussions as to how readily the DCN will be adopted by northern aboriginal peoples.

The present configuration of the DCN may reinforce existing social and economic divisions. The DCN in its current format will best serve those that have computers (and the necessary skills to use them) which is in direct correlation with those that have either money (work) to buy a computer or a job that gives them access to one. Community Access Centres do address the issue of computer access for the community as a whole; however, Pemik, McLeod and Bell point out that technical, physical access to a networked computer does not guarantee the DCN services will be used. The issues raised by Pemik with regards to adult use of information highway services would seem to indicate that generally the adult northern aboriginal population does not perceive text-based information highway services as a useful, pertinent technology for daily

living. Juxtaposed with the push for computer literacy in the schools, it is apparent that computers and a new communications network based on computer literacy has the potential to increase the generation gap in the north.

4.5.ii Pauktuutit Addresses Issues of Access and Culture on the Information Highway

Pauktuutit, the Inuit Women's Association has attempted to address the issue of the generation gap, along with that of the Community Access Centres. In 1996, Pauktuutit held a series of reflective meetings with feminist communications consultants to discuss the potential advantages and problems related to the information highway in general, and to the community telecentres proposed by the Nunavut Implementation Committee in particular (Roth 1997: 17). As a result, Pauktuutit integrated telecommunications technology both as a subject of discussion and as a tool to support discussions at the Annual General Meeting in 1997 (Pauktuutit 1997: 4). The participants, located in Puvirnituq, experimented with various communications technologies including: Internet technologies (CUSeeMe, web site development and marketing, search engines, listserves); video-conferencing (simulated); and telemedicine technologies. Some sessions involved discussions with women located in communities elsewhere in the north.

In Resolution 97-17, Pauktuutit recognized the potential of the new communications tools to "connect communities, youth, women and families" as well as the potential danger of "negative information" and resolved to support the training of youth in new communications tools, the development of public access centres and the role of community input in

the development of those centres, as well as to promote the use of communications tools in its own work (Ibid.: 34).

Both the process and the final report from the 1997 Pauktuutit Annual General Meeting demonstrate a model for a reflective approach to introducing the information highway into northern communities (Roth 1997: 13). This type of approach, which emphasizes community involvement, is a continuation of the public-consultation process initiated by the Inuit Broadcasting Corporation through the 1993 needs analysis and through the *Connecting the North* symposium. Some of the problems of vandalism and insufficient training cited by government officials in previous attempts to develop Community Access Centers could perhaps be avoided by following existing models for public consultation and community involvement. Igalaak in Rankin Inlet and the activities of the Dogrib School Board provide concrete examples of the importance of community involvement in the successful integration of a new communications technology. To truly reflect the right to communicate, communities must have the right to say no to a new technology, and to configure its format to suit their needs. Ongoing community consultation allows for building opportunities that reflect the needs of a particular community rather than those of an outside interest.

The slower approach of extensive and intensive community involvement appears to be at odds with the imperatives of private enterprise and government policy which view the information highway in terms of cost-efficiency and product/service delivery applications. The reflective approach embodied in the northern aboriginal public consultation process does not necessarily oppose that model. The potential for easier access to better healthcare and education services and the

promise of economic growth have not been rejected by northern aboriginal peoples, but the public consultation process has allowed time for the consideration of the fundamental question: Better for whom? Who decides how the information highway should be designed? The public consultation process is an empowering one that assumes that any and all citizens have a role to play in making public policy.

4.6 Does the Digital Communications Network Respond to Issues Raised at *Connecting the North*?

In Chapter Two, six broad issues regarding the information highway identified by the discussion group participants at *Connecting the North* were discussed. The six issues are: access, impact on culture and language, need for training, need for a system of accountability, need for northern participation in research and development, and funding. Federal government policy documents addressed some of these issues as discussed in Chapter Three. How the GNWT took these concerns into account is reflected in the design of the DCN.

Access

In terms of access, four components were identified at *Connecting the North*: technical access, equality of access, access to basic services and affordable access. Certainly the DCN provides all 58 communities with equal access to a technical infrastructure. The GNWT is making provisions to ensure some form of free public access through libraries, schools, and eventually government offices. Experiments in telemedicine and distance education suggest the potential, at least, for improved access to essential services. Ardicom's intention to market the DCN to stores, banks, lawyers

and other professionals represents the potential for access to basic services not available in many northern communities. Affordable access depends on many variables such as the rates charged and the cost of computer equipment. While government would like to think that it works in partnership with Ardicom, ultimately, Ardicom is a private enterprise which will charge what it believes the market can bear for services (Personal Interview, Gordon Robinson: June 4, 1998). Presently, there is no mechanism to regulate information highway service rates; however, the CRTC studied the question of subsidized telephone rates for rural and remote communities in 1998 (CRTC Public Notice 97-42).⁷⁹ In dealing with the issue of service to high cost areas, the CRTC will have to develop a definition of "basic service" which takes into account present and future communications services (Ibid.: 1). This decision will impact on rates for information highway services in the north.

The cost of computer equipment is another issue. Buying a home computer represents an expensive outlay in order to gain Internet access. Free public access through Community Access Centres and schools responds, in part, at least, to this issue (Personal Interview, Gordon Robinson: June 4, 1998).

Culture and Language

Beyond seeking a company with majority aboriginal ownership to build the DCN, the GNWT has undertaken relatively little activity in the area of culture and language. This is because culture and language are viewed as primarily a content issue rather than one of infrastructure. This logic

⁷⁹ The Commission is expected to release its findings on these issues some time in 1999 (Bell: July 2, 1998 2).

presupposes that once there is an infrastructure, then there will be a place to make content that is culturally relevant. While this is true to a certain extent, this argument fails to take into account the extent to which communication tools are a reflection of the society, or sector of society, that designs them.

...technology is a social construction. Its design, organization, and use reflect the values and priorities of the people who control it in all its phases, from design to end use. After the design has been implemented, the system organized, and the infrastructures put into place, the technology then becomes deterministic, imposing the values and biases built into it (Menzies 1996: 27).

Systems of communication which have been readily adopted by northern aboriginal peoples and used successfully in realizing goals of self-determination include the telephone (especially as a component of phone-in shows), radio, television and word of mouth. These media all have an oral component. As a system for social networking, the information highway is limited to users comfortable with computers, and with writing/typing and reading as a forms of communication. Viewed from this perspective, the DCN will provide increased access and services in terms of health, education (eventually justice and other government departments), administrative support to business, and will possibly improve access to some basic services such as banking and legal services, but it seems it will have a limited use as a tool for social and cultural networking.

Training

Training in computer technology in schools and through job training programs will, to a certain extent, expand the number of users

comfortable with the use of computers for communication. E-mail and other text formats; however, cannot accurately reflect all the nuances of tone and accent inherent to in-person communication. Personal contact is invaluable not only to social networking, but also for business and administrative dealings (Personal Interview, Brian McLeod: June 2, 1998). Good quality, affordable and accessible video-conferencing could address this issue (Jim Bell in Teitlebaum 1997: 286; Telephone Interview, Lorraine Thomas: May 13, 1998; Personal Interview, Linda Pemik: June 2, 1998).

System of Accountability

The conclusions reached by Pauktuutit are a reminder that community consultation and involvement in all issues pertaining to the information highway are of great concern to the Inuit. There is no mechanism built into the contract with Ardicom that ensures accountability in terms of standards and rates, or requires ongoing community consultation. Individual government departments are expected to consult with end users, in order to design delivery services that meet the needs of the user. The primary concern of the GNWT was to put in place a system that will support its workers in their jobs and responsibilities. A part of the GNWT's mandate is to provide free public access, and the development of community access points will require community consultation.

Northern Research and Development

While the need for a fund to support northern research and development is recognized, in part, and indirectly, in federal government

policy, as discussed in Chapter Three, no specific northern research fund has been created. Without a fund to experiment and test technologies and applications in the north, there is less opportunity for northern aboriginal peoples to experiment with information highway technology and to design uses and content particular to their language, culture and geography. While funds for infrastructure are drying up as the information highway is constructed, new funds now exist for content development.⁸⁰ This represents an important opportunity for northern aboriginal organizations to take an active role in developing services and exploring the use of the information highway in ways which are culturally, socially and politically relevant to them.

Funding

In 1996, the GNWT responded to the call from *Connecting the North* participants that the information highway infrastructure be funded by government, and that the infrastructure should be built through the combined effort of business and government. The DCN is a reflection of how market forces can play out in a monopoly environment. Built by a private enterprise, to the specifications of government, the DCN more closely mirrors the development of the telephone system in the north than that of broadcasting . In taking on the role of "anchor tenant," the GNWT is attempting to strike a balance between the imperatives of a market economy and a tradition of public service in providing communications systems.

⁸⁰ For example federal funding for content development is available through CANARIE and Telefilm Canada.

4.7 Conclusion

The question of who will design and operate the northern information highway has been answered, at least until 2002 when the contract with Ardicom comes up for renewal. The system, designed to meet the needs of the Government of the Northwest Territories, and the new Government of Nunavut, is close to completion. It will be operated by a private 100% northern-owned corporation with 66% ownership by aboriginal partners. The primary communications company NorthwesTel which owns Ardicom, is not aboriginal-owned, and as detailed in Chapters Two and Three, has not been perceived in a very positive light by northern aboriginal peoples.

The DCN has been conceived primarily as a cost-effective tool for delivery of decentralized government services. It is a reflection of the values inherent in its system as a digital data transmission network primarily designed to transmit print data but that has video-conference capability. It allows for text-based interpersonal communication but is not designed for extensive video-conference use (due to the cost of video-conference). The Tanami network also reflects the values inherent in it, forming a contrast to the GNWT's DCN. The Tanami Network is designed primarily as a system for social networking via video-conferencing. It is also an efficient system for print data transmission as required for various administrative applications. In some respects, the DCN may represent a missed opportunity for aboriginal control of the design and implementation of the northern information highway infrastructure; however, it has resulted in a pan-Arctic digital communications network -- one which holds the promise of improving northern residents' access to services deemed basic to daily living in southern Canada. As Roth points

out, the extent to which northern aboriginal peoples are able to make the new communications technology a lively form of cultural expression will be dependent on whether they are able to make themselves seen and heard, "visually, socially, technically, locally, discursively." (Roth 1997: 12-13). Does the DCN effectively offer a new space for the expression of northern aboriginal cultures? This question can only be answered with time as government, community and corporate sectors of society adapt to, or reject, a government service delivery system supported by information highway technologies.

Chapter 5

A Plea for Time: The Right to Communicate and Communications-as-Community

Harold Innis tells us that a “monopoly of knowledge” is the natural outcome of one society, or one portion of society creating a communications infrastructure based on its particular communication bias. This suggests that the new communications technology of the information highway has the potential to allow for the development of new cultural relationships through the reorganization of Canadian society as it adapts to this new medium. The history of the development of communications technology in the north was examined in Chapter Two and offers some clues as to what form these new relationships might take. The introduction of writing in the north demonstrates the extent to which “a monopoly of knowledge”(writing) can act on another society (oral-based) to disrupt its organization. The development of broadcast media, however, followed a different path demonstrating northern aboriginal peoples’ ability to affect change in the public policy process in Canada.

In this thesis I have examined major events and policy documents pertinent to the development of the information highway in Canada’s north from 1993 through 1998. My focus has been on the policy-making process as the federal government elaborated its action plan and the GNWT took the first steps towards implementing a northern information highway. Although this analysis allows for a comparison between the consultation process used in southern Canada and that used in northern Canada, any comparison between north and south is riddled with difficulty due to the very different political, social and economic characteristics of each region. The different approach to the development

of the information highway undertaken in the north provides another model for policy-making that can inform the national process.

The initiative shown by northern Native Communications Societies, northern aboriginal political organizations and northern governments to lobby for a northern information highway forms a sharp contrast to the beginnings of electronic media in the north when satellite stations were installed without consultation with aboriginal communities (Roth and Valaskakis 1989: 204). *Connecting the North* was built upon the lessons learned in gaining control of the northern aboriginal broadcast media, both in terms of ownership and production of cultural images.

As broadcast media was first developing in the north in the early 1970s, northern aboriginal peoples were also demanding increased cultural, political and economic autonomy. Similar concerns were expressed in the international context by the Non-Aligned Nations which called for a rebalancing of the flow of information as well as that of economic issues. These concerns were also reflected in communications and development theory as it moved away from the transportation model (communications as a product to be delivered), to view communications as an interactive process involving the sender, the receiver and their respective environments. The recognition of the organizing role of communications in society, and the value of multicultural perspectives outside of the Euro-caucasian experience, coincided with evolving perceptions of culture, language and political independence in the international arena. This shift in vision has been expressed through policy as the concept of the right to communicate. Recognition of the concept of the right to communicate represents an opening through which it is possible to circumvent potential or existing "monopolies of knowledge."

Conceiving communications as a basic human right suggests that government has a responsibility in ensuring the right to communicate is upheld.

The particular history and geography of Canada has contributed to create a national communications policy that recognizes the special needs of various constituencies. In order to ensure that the *Telecommunications Act* is upheld and that affordable access and universal service are available to all regions of Canada, the federal government has adopted subsidies and special funding policies that clearly take into account the notion of social or distributive justice discussed in Chapter Two. Distributive justice offers a mechanism for ensuring the right to communicate and working to eliminate or at least attenuate the effects of a "monopoly of knowledge." In effect, northern aboriginal peoples worked through the public policy process to successfully advocate their right to communicate in terms of print and broadcast media. The fact that Canadian federal communications policy has long supported the notion of distributive justice in ensuring the availability and affordability of telecommunications services through rural, urban and remote regions of Canada facilitated the process.

Northern Native Communications Societies are once again "policy-ing" the telecommunications field. The major players on the information highway in the north developed a strategy of their own to ensure that *their* agenda would also become a part of the national agenda. By creating a pan-Arctic event that involved all stakeholders and the general public, northern communications activists pre-empted the federal government's planned course of action which focused on consultations through the IHAC and on the CRTC hearings on the information highway. In this way, people

living in the north were able to ensure that their concerns played a part in the national policy-making process.

Although there appears to be a shift in Canadian telecommunications policy in favor of a “privately-operated” system regulated by government, federal communications policy still recognizes the need for distributive justice to ensure equal and affordable access to all Canadians in terms of information highway services. This is reflected in the northern aboriginal peoples’ successful lobby to have their concerns about access addressed in the federal government’s action plan as discussed in Chapter Three. Equal access to telecommunications installations was also integrated into the design of the GNWT’s DCN which guarantees equal information highway services to all 58 communities in the Northwest Territories and Nunavut. Equal access to telecommunications installations is a first step, developing and maintaining community access centres may actually provide residents of small northern communities with the opportunity to make use of the technology in an affordable setting.

The northern process for developing the information highway was very different from the process followed in southern Canada, where the technology was operational before the average citizen had even heard about it. Northern aboriginal peoples took an active role in developing the Information Highway through public consultation. While every individual of a given community was not involved in the public consultation process, the IBC needs analysis, *Connecting the North*, and the Pauktuutit meetings and resolutions have contributed to build public awareness about the potential uses and negative impacts of the information highway.

It is possible, and indeed essential, to the successful development of communications projects in the north⁸¹ to carry out an extensive public consultation process for several reasons: (1) the population is small, although dispersed geographically; (2) there is a cultural tradition of involving everyone in the community in the decision-making process (in the South we are used to electing a few elite and letting them carry-out the decision-making process for us); and finally, specific to the information highway (3), information highway technology was not widely available in the mid 1990s and was so costly that it was unlikely to be introduced rapidly. The combination of these historic, geographic and cultural factors make the north unique. These qualities do not disqualify northern aboriginal peoples from the larger Canadian debate over the information highway; rather, they served as an impetus to conduct a large-scale public consultation which has allowed northern aboriginal peoples to have direct input into the national policy-making process.

Heather Menzies proposes that individual citizens must participate actively in making the information highway a new place for human communication (Menzies 1996: 141). The recommendations made by Pauktuutit are relevant to women and families nationally and internationally. These recommendations reinforce the argument put forth by Menzies that the information highway should be viewed from a human perspective rather than the systems management perspective typical of the market economy. The argument for the concept of the right to

⁸¹ The CRTC recognizes the importance of public consultation in developing communications projects in the North. For Example, the CRTC turned down the original application by NorthwesTel to enter the cable business because it had not consulted sufficiently with the communities involved (CRTC Decision: 95-897, December 15, 1995: 2).

communicate supports this approach which places emphasis on the process rather than the product. The right to communicate acts as a sort of check against a "monopoly of knowledge." Innis' theory further contributes to the argument in favour of a human approach to developing communications infrastructure, as he demonstrates clearly the relationship between communication bias, monopoly of knowledge, and the form and function of the medium. Applied to the market economy model for the information highway, his theory would suggest that the forces driving the communications-as-commodity model (big business) is space-biased while the forces driving the communications-as-community model is time-biased. The federal government's effort to define the parametres of discussion about the information highway in terms of the market economy recognizes only the forces driven by a space-bias and holds the potential to create a new "empire".

The origins and nature of the Internet would seem to provide some hope for the reinvigorated public sphere called for by Innis and echoed in Menzies call for communications-as-community. The nature and history of the Internet as a network of networks may allow marginalized voices to develop and grow. Innis theory, though, coupled with Menzies analysis of the current federal government discourse, point to an infrastructure in which the public sphere has a reduced secondary role. It is viewed as mere content, a form of information (e-mail, chat room, bulletin board) to be bought or sold (whether through free advertising, sponsorship or an actual exchange of monies). The DCN also reflects this point of view, approaching issues of culture and language as secondary to infrastructure.

Menzies makes her own "plea for time" as she insists on the importance of opening up the language of the discourse around the information

highway to allow for other definitions. The reflective approach to the information highway undertaken at *Connecting the North* and through Pauktuutit (Roth 1997: 13) represent the sort of human, time-biased critical discourse Menzies suggests is necessary to counterbalance the current preoccupation with communications-as-commodity and provide alternatives to the dominant corporate culture.

Appendix I
Summary of Digital Communications Network Pilot Projects and
Expected Applications of the Government of the Northwest
Territories
Department of Health and Social Services

The primary means of communication in the health field is expected to be e-mail, as it facilitates communications and networking among health professionals, and can support the transmission of text and image data as attachments (Telephone Interview, Ed Norwich: May, 1998). An example of the potential role of the intranet is a project that began in the Kivalliq district in August of 1998. Already piloted in two locations in the Inuvik Region, Health Suite (WELLCOM) will link all Community Health Centres in the Kivalliq Region to facilitate analysis of local health and disease patterns (Ibid.).

In relation to health service delivery, diagnostic telemedicine applications promise the potential for considerable savings and improvements in the health of northern residents. Two projects already underway will serve to evaluate the effectiveness of telemedicine. The Western NWT Health Network (WESTNET), operational in July 1998, connects Inuvik Regional Hospital and Fort Smith Health Centre with Stanton Regional Hospital in Yellowknife. The Baffin Health Network (BafNet), operational in 1997, connects Pond Inlet and Kimmirut Health Centres to the Baffin Regional Hospital which, in turn, is linked to the Ottawa Heart Institute. The DCN, as well as upgraded communications and telehealth equipment, is expected to improve the performance of this service (Department of Health and Social Services June 1998).

A proposed project in Fort Smith offers an example of the type of diagnostic service that can be provided using telemedicine. Health practitioners would be trained to use a dermatology camera; images could then be sent to a specialist as e-mail attachments. This type of project could drastically cut health care expenses by assisting local General Practitioners or Nurses in deciding whether a rash requires treatment or an in-person expert diagnosis. It costs the Department of Health \$2,000 on average to send someone from their home community to see a specialist in Edmonton. If the patient remains untreated, or misdiagnosed, in his or her home community, there is a risk that his or her condition could deteriorate requiring an emergency medivac at a cost \$10,000. Pinpointing diagnosis earlier and providing effective treatment is expected to improve health care and avoid the cost and inconvenience of some travel for medical reasons (Personal Interviews, Ed Norwich: June 5, 1998; Natalie Leonard: June 7, 1998).

Key to the success of the new information management plan is ongoing training and education. A full 50% of the budget for the next three years has been assigned to training, professional support and maintenance of skills for health workers making the transition to DCN supported healthcare. While these costs are expected to drop somewhat as current workers are trained in new skills, the importance of ongoing professional development and support to reduce staff turnover is reflected in a larger training budget.

Education and training is not limited to government workers and medical professionals. Plans are underway to use the new information

technology to raise awareness about healthy lifestyle choices by making more health information available in northern aboriginal languages. The Department is looking at the possibility of setting up video-kiosks in Community Health Centres to provide patients with information in Inuktitut and Inuvialuit. The objective is twofold: to make more healthcare information available, and to encourage northern aboriginal people to enter the healthcare field. The Department is hoping to motivate 1 in 10 northern aboriginal people to work in Health and Social Services. It is estimated that it will take 25 years to develop the health workers and professionals required for the Nunavut Territory (Personal Interview, Ed Norwich: June 5, 1998).

Improved delivery of distance education programs and improved access to education and career opportunities are expected as a result of the DCN. The Department of Education, Culture and Employment is addressing these issues through its vision of Community Learning Networks. Sandy McAuley, Co-ordinator Distance Learning Systems, Department of Education, Culture and Employment, identifies Education as the field where the advantages of the DCN are most obvious. In examining the Department of Education, Culture and Employment's plans for the DCN, three primary areas of activity can be identified: creating public access points, the "North of 60 Bulletin Board" used for internal networking (administrative and support services for teachers), and the delivery of distance education courses (Personal Interview, Sandy McAuley: June 4, 1998).

References Cited

Articles

- Angus, Ian. "The Materiality of Expression: Harold Innis' Communication Theory and the Discursive Turn in Human Sciences," in *Canadian Journal of Communication* Vol. 23, 1998, 9-29.
- Austen, Ian. "Information highway Council adds advisory arts group" in *The Citizen Valley* May 7, 1994 D2.
- Bell, Jim. "Long Distance Competition: a double-edged sword," *Nunatsiaq News, Nunavut Edition* [www.Nunatsiaq.com] July 2, 1998.
- Beltran S., Luis Ramiro. "Alien Premises, Objects, and Methods in Latin American Communication Research," in *Communication Research* Vol.3 No.2, April 1976, 107-240.
- Charland, Maurice. "Technological Nationalism," in *Canadian Journal of Political and Social Theory*, Vol. X No.1-2, 1986, 196-220.
- Cowan Buchwald, Cheryl. "Canadian Universality Policy and the Information Infrastructure: Past Lessons, Future Directions," in *Canadian Journal of Communication* Vol. 22, 1997, 161-193.
- D'Arcy, Jan. "Direct Broadcast Satellites and the Right to Communicate," in *European Broadcast Union Review* Vol. 118, 1969, 14-18.
- Demay, Joel. "The Persistence and Creativity of Canadian Aboriginal Newspapers," *Canadian Journal of Communication*, Vol. 18, 1993, 89-100.
- Farbstein, Aviva. "Definitions of Basic Service in an Era of Convergence" in *Canadian Journal of Communication*, Vol.20, 1993, 395-400.
- Hamelink, Cees, J. "National Information Policies: A Plea for Dissociation," in *Cultural Autonomy in Global Communications*. City: pub. (1983) 87-124.
- Katz, Elihu. "Cultural Continuity and Change: Role of the Media," in *National Sovereignty and International Communication*. San Diego: Ablex Press (1979) 65-81.
- Koebberling, Uschi. "Extending Telephone to Canada's North: Experiences with Service Availability, Quality and Rate". *Canadian Journal of Communication*, Vol. 15 No.2, 1990, 16-32.

- Mahon, Rianne. "Canadian Public Policy: the unequal structure of representation" *The Canadian State: Political economy and political power* . Toronto: University of Toronto Press (1977) 165-198.
- Meadows, Michael. "Ideas from the Bush: Indigenous Television in Australia and Canada," in *Canadian Journal of Communication* Vol. 20, 1995, 197-212.
- Menzies, Heather. "Hyping the Highway: Is the Information Highway the road to a common future or just another trip to the mall?" *Canadian Forum* Vol. 73 No. 830, June 1994, 18-26.
- Raboy, Marc. "Policy, The Public, and the State – Learning from the Canadian Experience," in *Missed Opportunities: The Story of Canada's Broadcasting Policy*. Montreal: McGill – Queen's University Press (1990) 335-357.
- Richstad, Jim, L. S. Harms and Kathleen A. Kie, "The Emergence of the Right to Communicate." in *The Right to Communicate: Collected Papers*. Honolulu, University Press of Hawaii (1977) 112-136.
- Roach, Colleen. "The movement for a New World Information and Communication Order: a second wave?" in *Public Culture* Vol.2, 19, 53-69
- Roth. L. & Valaskakis, G. G. "Aboriginal Broadcasting in Canada: A Case Study in Democratization," in M. Raboy & P. A. Bruck (Eds.), *Communication for and Against Democracy* Montreal: Black Rose Books (1989) 221-234.
- Roth, Lorna. "How Comfortably does the Internet Sit on Canada's Tundra? Reflections on Public Access to the Information highway in the North." Speech to the Association for Canadian Studies in the Netherlands and Flanders, University of Antwerp, September 11-13, 1997.
- Sawchuk, Kim. "Blindspots on the Information Highway, A Work in continual process". Concordia University, November 1995.
- Shade, L. R. (1993). Computer Networking in Canada: From CA*net to CANARIE. *Canadian Journal of Communication* . No. 2, 1990, 283-307.
- Tehrani, M. "Totems and Technologies," in *Intermedia*, May 1986, Vol. 14(3), 20-29.

Teitelbaum, Sheldon. "The Call of the Wired," in *Wired*, November 1997, 241-286.

Tremblay, Gaëtan. "The Information Society: Fordism to Gatism," in *Canadian Journal of Communication*, Fall 1995, Vol. 20 (4) 461-.

Valaskakis, G. G. "The Other Side of Empire: Contact and Communication in Southern Baffin Island," in *Culture, Communications and Dependency*. Ed. Melody, Salter and Heyer. Ablex Press (1981) 209-223.

Valaskakis, G. G. "The Issue is Control: Northern Native Communications in Canada," speech presented at *The Chugach Conference*, October 5-6, 1990, 15-20.

Winseck, Dwayne. "A Social History of Canadian Telecommunications," in *Canadian Journal of Communication* Vol.20, 1995, 143-166.

Zellen, Barry. "Surf's Up! NWT's Indigenous Communities Await A Tidal Wave of Electronic Information," article on Cultural Studies Quarterly website [www.cs.org] 1998, 1-8.

Books

Carey, James W. *Communications and Culture*. New York: Routledge, 1992.

Carpenter, E. *Eskimo Realities*. New York: Holt, Rinehart and Winston, 1973.

Carpenter, Edmund and McLuhan, Marshall, ed. *Explorations in Communication*. Boston: Beacon press, 1960.

Hamelink, Cees J. *The Politics of World Communication*. London: Sage, 1994.

Innis, H. A. *The Bias of Communication*. Toronto: University of Toronto Press, 1991.

Innis, H. A. *Empire and Communications*. Toronto: University of Toronto Press, 1972.

McLuhan, M. *The Gutenberg Galaxy*. Toronto: University of Toronto Press, 1962.

McLuhan, M. *Understanding Media: The Extensions of Man*. New York: McGraw-Hill, 1965.

Menzies, Heather. *Whose Brave new World? The Information Highway and the New Economy*. Toronto: Between the Lines, 1996.

Ong, W. J. *Interface of the Word*. Ithaca: Cornell University Press, 1977.

Pavlik, John V. *New Media Technology: Cultural and Commercial Perspectives*. Boston: Allyn and Bacon, 1998.

Williams, Raymond. *Towards 2000*. Harmondsworth: Penguin Books, 1983.

Young, Iris Marion. *Justice and the Politics of Difference*. Princeton: Princeton University Press, 1990

Government Documents

Canadian Broadcasting Act, 1991.

CRTC. *Competition and Culture on Canada's information highway: Managing the Realities of Transition*. Ottawa: 1995.

CRTC Public Notice 1994-130. Call for comments concerning Order-in-Council P.C. 1994-1689. Ottawa: October 11, 1994.

CRTC Decision 95-897. Applications for authority to transfer effective control of three cable distribution undertakings and for licenses to carry on eight new cable distribution undertakings in the Yukon and the Northwest Territories. Ottawa: December 15, 1995.

CRTC Decision 95-898. Applications for licenses to carry on new cable distribution undertakings and for authority to acquire the assets of the cable distribution undertaking serving Pond Inlet. Ottawa: December 1995.

CRTC Public Notice 97-42. Service to High-Cost Serving Areas. Ottawa: December 18, 1997.

CRTC Decision 99-42. Television Northern Canada Incorporated Across Canada. Ottawa: February 22, 1999.

CRTC. "Summary Report on the Information Highway Proceeding," Ottawa: 1995.

Canadian Telecommunications Act, 1993.

Gerrard, Jon Secretary of State for Industry. Speech Feb. 2, 1994.

Government of Canada. *Building a More Innovative Economy*. Ottawa: 1994.

Government of Canada. *Building the Information Society: Moving Canada into the 21st Century*. Ottawa: April 1996.

Government of the Northwest Territories. *People, Our Focus for the Future*, Education, Culture and Employment: September 1994.

Government of the Northwest Territories. "Information Networks," 1998.

Government of Northwest Territories. "Information management Plan 1998-2001" Department of Health and Social Services: June 3, 1998.

Government of the Northwest Territories Fact Sheet. Government of the Northwest Territories Statistics based on Census Canada 1996 available on-line [www.gnwt.ca] August 5, 1998.

Information Highway Advisory Council. *The Canadian Information Highway, Building Canada's Information Highway*, Government of Canada, Ottawa: 1994.

Information Highway Advisory Council. *The Challenge of the Information Highway*, Government of Canada, Ottawa: 1995.

Information Highway Advisory Council, Preparing Canada for A Digital World: Final Report of the Information Highway Advisory Council. Government of Canada, Ottawa: 1997.

Order-in-Council P. C. 1994-1689. Ottawa: October 8, 1994.

Speech from the Throne, January 1993.

International Documents

Universal Declaration of Human Rights. Article 19.

United Nations Resolution 59(1) General Assembly 1946.

Reports and Comments to the CRTC

Angus, Elizabeth and Duncan McKie. *Canada's Information Highway: Services, Access and Affordability* . Prepared for Industry Canada, May 1994.

Ardicom Digital Communications Inc. "DCN Update," June 5, 1998.

Ardicom Digital Communications Inc. "What is Frame Relay?" December 1, 1997.

Fisher, Desmond. *The Right to communicate: A Status Report*. Paris: UNESCO 1982.

Government Northwest Territories. "Connecting the North to the information highway." Comments submitted to CRTC in Response to Public Notice CRTC 1994-130: Call for comments concerning Order-in-Council P.C. 1994-1689. January 16, 1995.

Internet Public Interest Research Group. Comments submitted to CRTC in Response to Public Notice CRTC 1994-130: Call for comments concerning Order-in-Council P.C. 1994-1689. February 13, 1995.

Inuit Broadcasting Corporation. "Connecting the North: Defining Northern User's Needs." Ottawa, December 30, 1993.

Inuit Broadcasting Corporation. *Northern voices on the Information Highway*. Ottawa, 1995.

Inuit Tapirisat of Canada. "Connecting the North". Comments submitted to CRTC in Response to Public Notice CRTC 1994-130: Call for comments concerning Order in Council P. C. 1994-1689. January 16, 1995.

Northwestel Inc. Comments submitted to CRTC in Response to Public Notice CRTC 1994-130: Call for comments concerning Order-in-Council P.C. 1994-1689. January 16, 1995.

Nunavut Implementation Commission. *Footprints in New Snow.*, Ottawa: 1995a.

Nunavut Implementation Commission. *Nunavut Telecommunication Needs: Community Teleservice Centres* . Ottawa: 1995b.

- Pauktuutit Inuit Women's Association. "Inuit Women Connect: Telecommunications Report," from the 1997 Pauktuutit AGM. June 1997.
- Standefer, R. L, "The Satellite Revolution: The Impact of Television in Canada's Northern Native Communities." Report prepared for the CRTC. March 1995.
- Telecommunities Canada. Comments submitted to CRTC in Response to Public Notice CRTC 1994-130: Call for comments concerning Order-in-Council P.C. 1994-1689. February 13, 1995.
- Television Northern Canada. Comments submitted to CRTC in Response to Public Notice CRTC 1994-130: Call for comments. February 13, 1995.
- Television Northern Canada. Submission Re: CRTC Notice of Public Hearing 1995-10. August 29, 1995.
- Tremblay, Gaëtan. *Le service public : principe fondamentale de la radiodiffusion canadienne*. Report presented to the Caplan-Sauvageau Commission, 1986.

Thesis and Dissertations

- Roth, Lorna. "The Role of Communication Projects and Inuit Participation in the Formation of a Communication Policy for the North." Graduate Communications Program, McGill University, Montreal, 1982.
- Roth, Lorna. "Northern Voices and Mediating Structures: The Emergence of Development of the First People's Television Broadcasting in the Canadian North." Dept. of Communications, Concordia University, Montreal, 1994.
- Herringer, Jay. "Communications Law and Aboriginal Broadcasting Rights in Canada: The Case of Inuit Broadcasting." Institute of Comparative Law, McGill University, Montreal, 1989.

Other Sources

Interactive Broadcast Symposium

Connecting the North (November 23-25, 1994). Documentation includes video tapes of broadcast and faxed comments from focus groups.

Email correspondence

Anne Grainger, Director Corporate Communications, NorthwTel, march 25, 1999.

Natalie Leonard, Consultant (Integrated Services Division), Computing Devices Canada, August 28, 1998.

Sandy McAuley, Co-ordinator Distance Learning Systems Information Networks (Education, Culture and Employment) Government of North West Territories, August 17, 1998.

Lise Potvin, adjointe affaires publiques, Bell Canada, March 26, 1999.

Christine Roberts, Corporate Communications, Bell Canada February 1, 1999.

Ken Todd, General Manager, Ardicom Digital Communications Inc., January 6, 1999.

Telephone Interviews

Gerry Gyberson, Executive Director, Television Northern Canada, March 4, 1996.

Ed Norwich, Department of Health and Social Services, Government of Northwest Territories, May 1998.

Lorraine Thomas, Acting Executive Director, Inuit Broadcasting Corporation, May 13, 1998 and August 1998.

Personal Interviews

Bill Belsey, Teacher, Leo Ussak School, June 1, 1998.

Peter Crass, Director, Systems Information Networks (Education, Culture and Employment) Government of North West Territories, June 4, 1998.

Greg Fandrick, Marketing and Communications, Ardicom, June 5, 1998.
Bob Johnson, past-president, NTnet, June 4, 1998.

Natalie Leonard, Consultant (Integrated Services Division), Computing Devices Canada, June 7, 1998.

Sandy McAuley, Co-ordinator Distance Learning Systems Information Networks (Education, Culture and Employment) Government of North West Territories, June 4, 1998.

Brian McLeod, Manager (Business Development), Nunavut Tunngavik, June 2, 1998.

Jacob Modayil, Coordinator of Technology, Dogrib Divisional Board of Education, June 5, 1998.

Ed Norwich, Department of Health and Social Services, Government of Northwest Territories, June 5, 1998.

Linda Pemik, Adult Educator, Nunavut Arctic College, June 2, 1998.

Gordon Robinson, Deputy Secretary Audit and Evaluation (Financial Management Board Secretariat) Government of N.W.T., June 4, 1998.

James Sandy, Divisional Manager (Technologies Division), Sakku Investments Corporation, June 2, 1998.

Mary-Lee Sandy, Systems Administrator, Sakku Arctic Technologies Inc., June 2, 1998.

Ken Todd, General Manager, Ardicom Digital Communication Inc., June 5, 1998.

Robert Tookomez, Assistant Manager (Business Development), Nunavut Tunngavik, June 2, 1998.

Websites

Ardicom. Home Page [www.ardicom.ca] January 6, 1999.

Canarie. Home Page [www.canarie.ca], August 28, 1998.

Government of Canada. Community Access Program [www.gc.ca] August 10, 1998.

NorthwesTel. Home Page [nwtel.ca] January 29, 1999.

NunavikNet. "Nunavik Net Evolution Phase I" October 1, 1997.