# TELECOMMUNICATIONS POLICY COMMUNITIES AND POLICY OPTIONS FOR RURAL AREAS

CENTRE FOR NEWFOUNDLAND STUDIES

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# TELECOMMUNICATIONS POLICY COMMUNITIES *AND* POLICY OPTIONS *FOR* RURAL AREAS

*by*

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## ABSTRACT

In the last two decades, largely fuelled by advances in computer technology, there have been rapid and significant changes in telecommunications technologies and networks. Reasonably priced access to telecommunications/information networks is becoming a necessary component to community economic viability. Given the speed of change, and the increase in importance and pervasiveness of telecommunications infrastructure and services, policy and the policy community in the domain are also in a phase of rapid growth and development.

This thesis documents changes in the telecommunications policy community in Canada and in the province of Newfoundland and Labrador during the last 15 years. It reviews a number of telecommunications policy options used in other countries with substantial rural regions. Finally, using Newfoundland and Labrador as a case study, it suggests policy options that might be employed to enhance opportunities for rural areas to have great access to more sophisticated networks, and thus be able to participate more fully in the economic benefits afforded by such access.

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# CHAPTER 1: RESEARCH QUESTIONS AND INTRODUCTION

## 1.1 INTRODUCTION

Within the last two decades, the rapid changes in technology, particularly in the areas of telecommunications and computers, have radically altered the way we work, communicate, and conduct many other aspects of our daily lives. Where once industry was based on resource extraction and manufacturing, it is now widely accepted that the industrial platform has changed to one that is grounded in the generation and utilisation of knowledge and information (Manley, 1994; Lesser & Hall, 1987; Hillman, 1993; Communications Canada, 1992a; Parker & Hudson, 1992). Over the past 40 years the tertiary/knowledge industries (e.g., services, consulting, adminstration) have grown faster than other sectors (Communications Canada, 1987). Reasonably priced access to telecommunications networks is as important to regional economic viability today as access to transportation systems was 50 years ago, as the former are now the means of delivering information based products to market. Policy makers are challenged to formulate and implement policy to respond to this very dynamic environment, while maintaining the balance of cultural and socioeconomic values that are part of the Canadian tradition.

This thesis deals with three main components: a) recent changes in Canadian telecommunications policy, b) the growth in the policy community during that same period, and c) alternate policy approaches that could be applied in this area. It is organised into five chapters. This first presents the research questions, defines the scope, defines terms, and introduces the major concepts that will be dealt with in more detail in later chapters. The second reviews the literature and briefly describes portions of major theories that might be useful in understanding the analysis in this work. The third and fourth chapters present the data collected for the thesis: the third, the data on the changes both in the policy itself and the policy community; and the fourth, data on policy approaches used in other countries. The final chapter

analyses the data and suggests policy options which could be implemented to encourage universal access to basic level telecommunications services deemed necessary to support community viability.

## 1.2 Research Questions

### 1.2.1 *Part A*

Concern has been raised that current telecommunications policy directions - i.e., the trend toward deregulation and competition - impact negatively on rural regions. The year 1979 heralded the first of the recent Canadian Radio-Television and Telecommunications Commission (CRTC) rulings which began the trend toward a more competitive telecommunications industry in Canada. (See Table 1, Appendix 1 for Rulings.) This study seeks to answer the question, has there been a corresponding change in the policy communities in Canada and in Newfoundland, and if so, in what manner have they changed?

### 1.2.2 *Part B*

The literature in non-Canadian jurisdictions suggests that alternate or complementary policies could be feasibly employed to create opportunities for residents of rural areas to participate more equitably in the evolving knowledge-based society. As a secondary issue, the thesis will review a number of alternate telecommunications policy options and identify those which might feasibly be implemented in the Newfoundland setting, given the policy environment discussed in Part A.

The period of study is from 1979 to 1995.

## 1.3 Convergence

Due to rapidly and radically changing technology, the telecommunications industry is undergoing a significant structural change, referred to as "convergence". Industries that were once quite independent - i.e., telecommunications (telephony) networks, computers (hardware and software), and more recently broadcast (specifically

television) - have converged at least technically to form a new technological platform - "information networks".

It is becoming increasingly difficult to differentiate between the actual telecommunications networks, the computer technology that inputs information to these networks, and finally the information itself. All are based on digital operating systems; that is, they use the universal and efficient language of computers and are linked through telecommunications networks which also use this digital language to code and transmit messages. To take advantage of these efficiencies technologies such as television, sound recording, publishing and voice telephone services are converting to digital format (Communications Canada, 1987, 1992a; Advisory Committee on Telecommunications Strategy for the Province of Ontario {Adv.Com.Ontario}, 1992, McPhail & McPhail, 1986, 1990). One result is that the once distinct types of telecommunications networks, broadcast and telephony, can now provide similar services. The broadcast industry has developed technology that allows customers to utilise their home television to communicate with the stations/companies that are providing the services. Similarly, telephone companies can deliver video programmes on telephone lines.

Significantly, both the telephone and cable industries are promising to make enhanced services available to only 75%-80% of Canadian homes by the year 2005 (Stentor, April 15, 1995; MacDonald, 1994). If these initiatives are implemented without appropriate counterbalancing policies or actions, they will likely aggravate the already apparent discrepancy between services to rural and urban communities.

### 1.4 Scope

The term "telecommunications" literally means "communications at a distance" and, as such, refers to a great number of technologies. This thesis deals only with policy that pertains to the sector industries which provide interactive capacity - traditionally, the telephony industry, but increasingly, aspects of the broadcast industry. (See above.) It

does not deal with computer hardware or software, or broadcast technologies, except as they "converge" into the interactive environment. The thesis, however, does address policy as it relates to all aspects of interactive communications - voice, audio, data, imaging, and video.

To investigate the feasibility of implementing alternate or complementary policy, the thesis presents an historical comparison between the telecommunications policy community in Canada and Newfoundland as it existed at the beginning of the period of deregulation, with that currently existing. It identifies major influences and factors that might have contributed to any changes. A number of alternate policy options are described and their potential for adoption in the context of composition and capacity of the current policy community is explored.

This analysis is supplemented by a discussion of other factors which might influence the potential for implementation. The thesis concentrates on identification of social and development impacts and outcomes. It is not indifferent to economic issues but it is not intended to be an economic analysis. (See Section 1.6.3, below.)

### 1.5 Sources and Approach

Data for inclusion in the analysis were collected from the following sources:

a) public policy literature, which contributed to the framework for analysis, and provided general information on policy communities, influencing factors, and potential models selected from among those practised in other jurisdictions;
b) government and industry publications, including reports of national and provincial commissions dealing with telecommunications which provided specific information on the policy community and additional information on models;
c) published proceedings of CRTC Telecom Decisions;

d) minutes of the hearings of the Newfoundland Public Utilities Board dealing with telephony issues; and

e) a limited number of interviews conducted by the writer with business persons, administrators in rural Newfoundland, and government officials and telecommunications providers in the capital city.

Data were analyzed using an historical comparison based on a case study of Newfoundland as a region of Canada with a significant rural population, employing the specific classification tool of the Canadian and Newfoundland policy communities in this domain.

## 1.6 SIGNIFICANCE

### 1.6.1 *General Policy Domain*

Communications initiatives have always been important in Canada because its population is small relative to its geographic area (Council of Ministers of Education of Canada {CMEC}, 1993, p.1). Successive federal governments have pursued the development of the great lakes waterways, national railway, and road systems as part of their social and economic policy objectives. Since the invention of the telephone (1874), the federal government has also supported the use of telecommunications systems to achieve its goals of enhanced trade, competitiveness, cultural vitality and national sovereignty (Globerman & Carter, 1988; Manley, 1994, p. 7).

Regulation in the monopoly telephony environment has permitted a variety of activities, such as cross-subsidies, because they have supported a single pricing structure regardless of location thereby encouraging equitable access for all citizens. Within the last 12-15, years the Canadian telephony industry has changed from the status of regulated monopoly to one of regulated competition. Table 1, Appendix 1 lists the significant CRTC decisions which have shaped this transition in Canada. While these, doubtless, have many positive aspects, such decisions have also opened the door to allow industry to decide, as indicated above, to provide enhanced service to

only 75% of communities, thus potentially leaving whole regions of the country without access to this critical new infrastructure.

A number of recent studies, including the most recent CRTC recommendations in May 5, 1995, have expressed concern that given the change in the industrial platform, there is a distinct possibility that letting the market dictate information technology and telecommunication diffusion, will exacerbate the already existing differential between urban and rural areas. A number of non-Canadian jurisdictions have introduced policies, a few of which are mentioned in this work, that could counterbalance this effect. (See Chapter 4.) Given the extensive rural regions of this country, the regulatory trends outlined above, and a potentially developing urban/rural dichotomy, it would appear pertinent to review such options to determine their appropriateness for the setting.

### 1.6.2 *Policy Communities*

The study of policy communities is a relatively new and effective approach to assessing the many facets of the complex environment of policy formulation and implementation. (See Chapter 2.) Telecommunications is an area of increasing strategic importance; thus, the number of players actively involved in this area is also in a period of rapid growth. This domain was once almost the exclusive purview of the regulatory agencies, the common carriers, and a small group of government divisions, such as the Division of Communications within the Department of Transport.

Regulatory bodies,[1] which traditionally provided expert and impartial advice to policy makers in certain technical areas, have become increasingly important in the role of governmental control of the economy, and specifically where there is development in circumstances in which market forces are uneven. They have indeed defined policy in their own right (Schultz, 1979) and, to a certain extent, have shaped the policy community. In Canada, until 1980, national, provincial and municipal telecommunications regulators were quite interventionist (Denny, 1986; Communications Canada, 1992b, Table 4), and each utilised its regulatory position to further its own development and social objectives (Fuss & Waverman, 1981; Communications Canada, 1987, 1992b; Babe, 1988, 1990; CRTC, 1980). Increasingly, regulation of the telecommunications industry has become centralised in the federally appointed CRTC; therefore the provinces, whose social and development needs are quite different from those of the federal government, have less influence on policy which might affect their regions (Schultz, 1979; Babe, 1990; Denny, 1986).

Balancing this centralization, the policy community appears to be broadening. The last CRTC public meetings considered in this thesis (May, 1995) heard presentations from groups as diverse as Stentor, Rogers Communication, women's groups, school boards, and universities. Given the increase in the number of actors in the policy community, it would appear that a study of this community might be informative in analyzing changes in this sector.

### 1.6.3 *Social and Development Issues*

Development of service and knowledge based industries is a major economic thrust of many industrialised countries, including Canada. Therefore, access to information

[1] Given its origins, the activities of the carriage industry were first governed by the Railway Act, the National Transport Act, The Canadian Radio Television and Telecommunications Act, the Telecommunications Act, (1979) and, most recently, the new Telecommunications Act, Bill (1992). There have been complementary federal regulatory agencies: the Railway Commission, the Telecommunications Committee of the Transport Commission, the Canadian Radio-Television Commission, and a merger of the last two in 1976 the Canadian Radio-Television and Telecommunications Commission.

networks will be essential for continued community viability (Manley, 1994; Prosperity Initiative, 1991, 1993; Govt. of Newfoundland and Labrador, 1991; Nordicity Group Ltd. {NGL}, 1994; N.B. Task Force, 1993). Accompanying this increase in strategic importance, concerns are being raised regarding the potential social, economic and cultural impacts of the implementation of telecommunications and related information technologies. Some approaches to telecommunications diffusion, particularly in an unregulated and competitive environment, create dichotomies between urban and rural areas, large and small businesses, and social and business applications (Hillman, 1993; European Communities Commission {ECC}, 1990; Mosco, 1990; U.S. Congress Office of Technology Assessment {U.S. Congress}, 1991; Lesser & Hall, 1987; Parker & Hudson, 1992).

On the optimistic side, the universality of telecommunications networks and deployment of new media can enhance the viability of more remote communities by increasing access to social, educational, and health services (Communications Canada, 1992a; Adv.Com.Ontario, 1992; Department of Communications {DOC}, 1971; Angus & McKie, 1994; N.B. Taskforce, 1993; NGL, 1994). Some suggest that these new technologies will decrease drudgery in the workplace and that opportunities for telecommuting/telework will open avenues to groups traditionally excluded from the workforce (Hillman, 1993).

A more pessimistic view contends that development of information industries requires considerable capital as well as a more skilled and educated labour force to work in them (Adv.Com.Ontario, 1992; McPhail & McPhail, 1986, 1990). Therefore, far from providing equal access, these technologies may serve only to reconfirm the domination of those who already hold significant power (U.S. Congress, 1991; Mosco, 1990, p. 19). Others are concerned that although overall production efficiencies and consumer welfare will increase, the inevitable labour dislocation will be worse in lower-income and more vulnerable groups (Dobell, 1987; Hillman, 1993) and high skill jobs will be concentrated in large urban centres, while supply-and-purchase positions will be

relegated to smaller regional offices, thus facilitating recentralization of economic activity and the reduction of local enterprises. This will, in turn increase the existing disparities between regions and between urban and rural areas (Dobell, 1987; Organization for Economic Cooperation and Development {OECD}, 1986; ECC, 1990; Parker & Hudson, 1992; U.S. Congress, 1991). Further, some hold that the new media actually contribute to the deskilling of the workforce by demanding a few highly skilled occupations matched with a larger population of relatively unskilled occupations, thus contributing to a disappearing middle class - again of potential increased concern in regions that are already losing their middle class due to emigration (Dobell, 1987).

The rate of modernization of infrastructure depends on demand while, at the same time, the development of applications is critically dependent on the availability of infrastructure (ECC, 1990, p. 9). Rural areas cannot generate the required demand. Combined with the decreasing tendency to cross-subsidise (CRTC, Decision 94-19), this situation will likely influence already vulnerable rural areas to slip into further decline unless they are otherwise supported with innovative policies (ECC, 1990, p. 5). In practice, except as part of publicly regulated programmes, telecommunications is bound to focus on the largest and most profitable markets (Hillman, 1993, p. 7). Just as the availability of telecommunications infrastructure is becoming critical for business growth, the regulatory environment that once gave equal access to these networks is altering radically and undermining the systems of rate averaging and cross-subsidy for local services. Vendors, by and large, are focusing on large and lucrative businesses, not small rural enterprises, scattered residences and geographically dispersed school boards (Parker & Hudson, 1992; U.S. Congress, 1991). These opinions highlight the significance of describing the Canadian setting, including the stakeholders who will influence, and be influenced by, the outcomes of policy in this rapidly evolving area.

## 1.7 Possible Alternate Policy Options

A variety of alternate policy approaches which deal specifically with the dichotomy between rural and urban regions have been formulated in other countries. A number are mentioned below and will be discussed in more detail in Chapter 4.

In the United States, policy makers have become increasingly concerned about the impact that the Bell divestiture and increased competitive environment, coupled with the dramatic change and growth of the information industry, are having on the viability of rural regions. Growing out of this concern, a number of alternate policy approaches are under consideration or have been implemented. One such policy change would permit deployment of Rural Area Networks (RANs) to allow communities to collaborate with nearby communities to enable community groups, businesses, education and health institutions, and local government to share a "virtual network". This would give them the ability to create a collective or aggregated demand, thereby sharing some of the advantages of bigger businesses (Parker & Hudson, 1992; U.S. Congress, 1991). Other United States models include:

a) Employment of "incentive" rather than "rate of return" regulation. In the former, companies can compete but those that carry out activities which complement government's economic development programmes are permitted to take a higher percentage of profit - i.e., they are given incentive to improve service while reducing costs (Parker & Hudson, 1992).

b) Certain state-led approaches which capitalise on the link between telecommunication, economic development, and the role of government as a user of networks for the delivery of services. Such is the case in the states of Washington and Nebraska both of which have large rural populations (Schmandt et. al, 1989).

In other countries similar attempts have been made to reduce the discrepancy between rural and urban regions. Ireland, for instance, has created the climate, including the legal and commercial environment to facilitate "telework" (the potential to work in one

location for an employer located in another); this was a key policy initiative to support the deployment of new telecommunications services in rural regions (Hillman, 1993). In Canada, too, preliminary steps in this direction are under consideration. The Government of Ontario, for instance, has committed itself to taking the lead as a model user of information technology networks. It has implemented policies that support extensive network-based delivery of government services including health, finance, and education (Adv.Com.Ontario, 1992, pp. 48-51).

The information in this chapter suggests that despite deregulation at the national levels, there are a variety of policy approaches exist that could be implemented at regional levels to maximize benefits of telecommunications systems to a wider group of citizens. The short survey also suggests that: a) approaches tailored to the needs of a region can enhance its viability while still operating within the general framework of national objectives: and b) the study of policy communities which follows is useful in assessing changes and implementation possibilities in this domain. The concepts and options discussed in a preliminary manner in this introduction will be explored in more detail in Chapters 3 and 5.

# CHAPTER 2: THEORY

## 2.1 INTRODUCTION

The discipline of Political Science is informed by a rich variety of literature and theory. Of the many models that could have been selected for the analysis in the thesis, the concept of the "policy community" and the relationships of the "policy networks" within the community has been chosen to elucidate changes in the telecommunications domain in recent years in Canada and Newfoundland. (See Section 2.8 for details.) A general review of relevant literature combined with the writer's practical knowledge of the telecommunications field lead to the decision that this instrument allows both documentation and analysis of one aspect of change in the rapidly evolving area.

Although the concept of the policy community will be the working tool of the analysis, a number of other theories and models also contribute to our understanding of the various relationships and policy outputs in this domain. In order to provide additional context, both to these relationships, and to the trace some of the historical roots of the policy community concept, relevant portions of alternative theoretical frameworks are discussed in this chapter. The chapter will conclude with a description of the concepts of policy communities and networks which will be used in the thesis.

## 2.2 STATE CENTRED THEORY

Among the earliest approaches to public policy analysis was one that focused on the "state" as an entity consisting of the collective of institutions that exercise binding power and authority, and which set the rules and determine the allocation of resources (Atkinson, 1993a, p. 7). If one views the "state" as a group of individuals and institutions which are essentially autonomous from the rest of society, then one can argue that office-holders have the authority to make decisions that are binding on all segments of society. This theory posits that the executive, central agencies, legislature,

and bureaucracy define policy, and then convince the public of the validity of the policy through information provision, manipulation of information, or if necessary, coercion and then implement what is perceived to be best for society. Historically, the growth of capitalism went hand in hand with the growth of strong, autonomous states which could ward off internal and external threats (Domhoff, 1990, pp. 9-11). The modern state grew because of its needs and abilities to marshall an army, collect taxes, and compete for trade to complement and support capitalist growth (Migdal, 1991, p. 52).

Some studies classify states by combinations of two types of power: a) "despotic " (the range of actions that the state and its elites are permitted to conduct without negotiating with society); and b) "infrastructural" (the capacity of the state to penetrate society and implement logical political decisions). The mix of these two types of power leads to one of four different types of states: a) feudal, b) imperial, c) modern authoritarian (unitary and autonomous), and d) capitalistic democracies. Democracies are low on despotic power because of the electoral process, the law, and external financial agencies, and are high on infrastructural power. None however can be held up as autonomous, as the strongest groups of civil society and the size and activity of the bureaucracy, which present many access points for penetration by outside interests, are constraining elements (Domhoff, 1990, pp. 22-27).

Other state theorists, such as Nordlinger, hold that current popular societal/pluralist theories, with their claims of iterative policy formulation and implementation processes, do not help explain how government policy is developed and implemented. Nordlinger argues that western states, including a "weak" state like Canada do "direct" or exercise significant autonomy, that is they have the capacity to formulate and implement policy preferences without being significantly influenced by societal interest groups. His "state-centred model" holds that democratic states are autonomous and frequently act on their own policy preferences, often against the will of even the most powerful interest groups (Nordlinger, 1981, p. 2). His model posits that modern

democratic states utilize specific tools by which they translate their own policy preferences into action. When, for instance, societal and state preferences diverge, governments:

a) employ state resources to neutralize similar private resources (e.g., use state-controlled banks to offset the threat of an investment strike), use a decision-making style that is difficult to decipher, or provide telecommunications services through a crown corporation (Nordlinger, 1981, pp. 130-131); or,
b) less coercively, they report and widely support cases in which state and societal goals are actually the same or, heighten the visibility of the advantages of the state's position relative to the disadvantages, thus aligning societal preference with the state's (Nordlinger, 1981, pp. 111-112).

When, on the other hand, state and societal preferences converge, states reinforce consensus by strengthening the commitment of groups whose preferences converge with the state's, by relating authoritative actions to widely shared values, or by solidifying deference to state positions by hiring recognised experts for senior positions (Nordlinger, 1981, pp. 92-93).

The many new functions of the modern state (e.g., regulation, consultation and information processing) and the heightened role of the bureaucracies with their numerous line departments, agencies, and specialised technical personnel, are among the more prominent features of advanced capitalist states which allow governments to act autonomously. Paralleling this growth in the bureaucracy was a change in the function of state institutions, from warfare to welfare to economic development. For example, in Canada, agencies and activities changed in the postwar period, from support of the war machine to the development of health and social programmes, on to economic development activities such as building hydropower facilities (Ontario, Manitoba, and Newfoundland) and, more recently, to development of advanced communication networks. The increasing technical capacity within the bureaucracy has been accompanied by a change in attitude from a passive to an active planning

role. The modern state has thus established a new type of social control, enabled by the technocratic decisions which are often obscure. In some ways, these may be preferable to earlier forms of control, such as coercion, but ultimately large numbers of people still come to do what the state requires (Olsen, 1980, pp. 8-9).

In the telecommunications area one can see evidence of these state driven initiatives. For instance both the federal and provincial governments have operated crown corporations that have provided telephone services in areas that were not served by the private sector. The interface to the bureaucracy through the CRTC is highly technical and thus provides a considerable degree of autonomy to the government. Recently the government has contributed significantly to the development of the information highway in Canada, seen in the modern era as an economic necessity, through paying outright for the infrastructure and supporting research and development projects related to its growth in this country. The first two of these are recognisable tools of state autonomy; the last reflects Nordlinger's description of using state resources to reinforce the commitment of groups whose opinions support that of the state. (See Chapter 3 for a more detailed discussion of these issues.)

## 2.3 Elite Theory and Elite Accommodation

In Canada, during the post World War II era, the growth of the bureaucracy has been accompanied by an increase in the power of the provinces and a renewed interest in federalism. This has actually produced a whole new approach to policy formulation and implementation through negotiation and cooperation between cabinet ministers and senior bureaucrats at the federal and provincial levels by means of subcommittees and interprovincial coordinating committees (such as CMEC) - a process characterised as "executive federalism "(Olsen, 1980, pp. 10-13). This type of operational process can be elucidated to some degree by the concepts of elite theory and elite accommodation.

> Elites are those who have assumed the major decision-making roles in various institutions of the complex modern state - labour, political, economic, ideological, etc. Elites both compete and cooperate with one another: they compete to share in the making of decisions of major

> importance to society, and they cooperate because together they keep the society working as a going concern... It is elites who have the capacity to introduce change, but changes bring about shifts in the relations between the elites (Porter, 1965, p. 27).

Elite theory argues that a small number of actors have disproportionately more power and influence than others. These people are an homogeneous group and usually not representative of the population at large in either gender, religions background, class, education, or ethnicity. In an early Canadian study, Porter found that in all sectors of the elite, white males of English origin were, by far, the dominant representatives with francophones, females, and ethnic groups other than the charter groups being under-represented (Porter, 1965, chap. 13). Elites tend to share strong feelings of political efficacy, personal self esteem, and a belief in their ability to make and implement wise decisions (Presthus, 1973, p. 13).

Porter holds that in modern societies, there is a separation and balancing of power into various state and societal institutions and sectors: the political, bureaucratic, ideological, economic elites, labour leaders, and the leaders of certain powerful pressure groups (Porter, 1965, pp. 202-207). In Canada, the elites in these sectors are linked through shared socioeconomic background, kinship, ethnicity, and shared social experience. Labour leaders are the one exception to the pattern. They are uniformly middle class, and share neither the common socioeconomic background nor informal aspects of the "confraternity of power". Their means of access to the other elites is through political avenues and negotiating with corporate elites in collective bargaining. As a result there is, in reality, little ideological difference between the elites of any governing party and other elites because of these shared experiences and beliefs (Porter, 1965, pp. 470, 522-525, 539; Presthus, 1973, pp. 5-9 & 170).[2]

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[2]Porter and Presthus draw on earlier works of Gaetano Mosca, Robert Michaels and C Wright Mills. Mosca divided society into two classes - the ruling and the ruled - with the former being a small but powerful minority. In modern states, government functions are carried out by different segments of the ruling class. Michaels concentrated on the internal politics of large-scale organizations such as the modern bureaucracy, claiming that they form hierarchical structures which not only preclude internal democracy but in the political

Government policy formulation and, indeed, the survival of the country's political system is thought to be ensured through symbiotic interactions and continuous mutual compromise referred to as "elite accommodation". The elite, committed to maintaining the system, rise above the cleavages existing at the subcultural level and, in a climate of mutual compromise, find pragmatic solutions to the demands of their constituencies and sectors. This theory is only peripherally connected to party government. It is essentially focused on private and public elites and their ability to work out pragmatic allocations of national resources, in order to reconcile tensions of political culture. As a result of the federal system and the institutions which have grown around it (discussed in greater detail below), the basis of accommodation among the Canadian political elite also includes geographic factors (Presthus, 1973, pp. 13, 60 & 221).

Similarly, at the mass level, it is argued that the populace must, among other political attributes, be willing to delegate effective governing authority to leaders, participate only sporadically in the political process, and have a moderate level of nationalism. Such has been the case in the Canadian system (Presthus, 1973, pp. 13-16). By and large there was, and still is, a pragmatic acceptance of the government's role in the economy, a traditional and relatively differential view of authority, a limited participation in the political culture on the part of ordinary citizens through elections, and, lastly, an acceptance that big government and big business make the decisions (i.e., an acceptance of corporatism) (Presthus, 1973, pp. 20-21 & 37-38).

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environment, undermine the democratic institutions of society, eventually resulting in a regime that resists change. In a modern state in which government carries out so many functions, the dominant classes can and do use these structures to secure and preserve power. Mills saw public policy as being decided upon by a small number power elites who agree upon the basic values of the social system an govern and control by a system of elite accommodation.

See G. Mosca. (1939). The Ruling Class. New York: (trans. H.D. Kahn.); R. Michaels. (1962). Political Parties, Collier (ed.), New York; C.W. Mills. (1956). The Power Elite. New York.; and "The American Business Elite: a Collective Portrait" in Power, Politics and the People. I.L.Horowitz (ed.), New York, Oxford Press, 1945.

In a 1980 study Dennis Olsen updated the Porter data in the areas of the political, economic and ideological elites. He did not include the labour elite in his study but otherwise found that there had been little change in the intervening 13 years.

Despite that fact that Porter's work was written some 30 years ago, and that, arguably, a more pluralistic and less deferential policy community is evolving, some elements of this theory can still be observed in this policy area. The data presented in Chapter 3 will show a closely knit policy community in the 1970s and 1980s both nationally and certainly provincially. Only the most recent data signal an evolving change. (See Chapters 3 and 5.) Factors such as the concentration of power and technical capacity of the corporate elite, the specialization of the bureaucracy, and, quite possibly, the short terms of office of the responsible ministers in this highly technical and rapidly changing sector, continue to influence the "accommodations" and the resulting policies. It should also be noted that until this decade there has been little or no presence of the voice of labour at the policy table in this industrial area (Sheaves, 1995).

The following is an example of an elite accommodation in the telecommunications field. On May 5, 1995, the CRTC recommended to government, that the Stentor companies be prohibited from offering the newer broadband interactive services to the home until the technology and costing on the disaggregation of "local loops" had been completed. This effectively gave the cable companies a two to three year lead time to develop products in a competition-free environment, in their race with the major telephone companies to obtain dominance in the development of the information highway. Further, shortly thereafter a CRTC decision established national guidelines which enabled the cable companies to use the telephone company poles for distribution of their fibre-optic cable, yet again apparently favouring the cable companies (CRTC, 1995a; 1995b Telcom Decisions 95-13 & 95-19).

However, later that same month, a letter of intent (finalised in October, 1995) was signed between Ca-Net, CANARIE (Canadian Network for the Advancement of

Research in Industry and Education), and Bell Advanced Telecommunications (BAC), a Stentor partner, which gave development and management of the infrastructure to support both the functional Canadian Internet and its high speed test network to BAC.[3] Therefore, the defacto information highway in Canada was being immediately privatized largely through BAC (CANARIE, 1995a, 1995b; St Arnaud, 1996). All the CANARIE (public) funding, estimated at some $57 million dollars was being put into this endeavour. One could argue that this agreement with its associated advantages to the Stentor group was the result of an "accommodation" which compensated the telephone companies for the CRTC's having provided the cable companies an effective lead in the information highway race. This accommodation was no doubt facilitated by the fact that the Presidents of CANARIE and Stentor work in the same building.

### 2.4 NEO-MARXISM

An entirely different view is provided by the political economists whose intellectual roots lie in Marxism. Marxists also hold that the policy process and governance in general is dominated by a ruling class. The Marxist and neo-Marxist schools hold that the power and accommodation of elites in society and, more specifically, in politics are determined by the development of more fundamental underlying economic forces. Like public choice theory (see below) this school assumes that "interest" is the true basis of public policy. Public policy is the result of conflicts between the interests of different economic classes - i.e., the bourgeoisie (capitalist class, now including the political elite and middle class) and the proletariat (working class). Marxists maintain: a) that the state in capitalist societies does not represent the general interest but rather that of the ruling class; and b) that the bureaucracy is an instrument of the dominant class with which to exercise power over other sectors of society.

The Marxist view of the bureaucracy is not one of an independent power which maintains stable and neutral government but rather one whose primary purpose is to

[3]Unitel was also granted a very small portion of the activity.

serve the corporate elite. This situation arises they argue because senior officials have personal ties to, and come from, the same social origins as the elite and because the interest of these bureaucrats and the ruling elite coincide. The growth of bureaucracy and corresponding state intervention gives the state autonomy to avoid self destruction, while at the same preserving the dominance of the elite classes, by providing for the needs of the capitalists through investing in such services as higher education, transportation facilities, resource development and social services - e.g., welfare, health insurance, unemployment insurance, etc. (Aucoin, 1979, p. 9). Further, the state helps capital accumulation directly through industrial development grants, and indirectly through labour laws that inhibit the formation of unions or by sheer inaction, such as not enforcing occupational safety guidelines.[4]

Authors such as Gad Horowitz (1978) hold that, in the Canadian environment, Marxist socialism has been tempered by French Catholicism and "Tory" conservatism, with their emphasis on community over individualism, and later, the British Marxist immigrants. The result has been the formation of socialist governments and institutions. The reader will see evidence in Chapters 3 and 5 of the outputs of this political philosophy in the activities of public utility boards and governments of the Prairie provinces in forming government-owned and -operated telephone companies.

## 2.5 Rational Choice Theory

Rational Choice Theory represents something of a break with the social science tradition. The theory, based on the empirical testing of hypotheses, began to emerge from economics in the late 1950s and early 1960s. Its application proceeds from assumptions about human motives and behaviours to draw logical and institutional policy implications (Almond, 1990, pp. 121). This section will also review major

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[4]For more detailed information on the application of Marxist theory in modern states see the following. R. Deaton. (1972). The Fiscal Crisis of the State and the Revolt of the Public Employee. Our Generation. 8, 11-51; R. Milibrand. (1969). The State in Capitalist Society. (pp. 48-68). London: Weidenfield and Nicholson; R. Milibrand. (1977). Marxism and Politics. Oxford: Oxford University Press; N. Poulantzas. (1975). Political Power and Social Classes. London: NLB and Sheed and Ward.

authors of the public choice tradition, a subset of rational choice, which bases its analysis on the single assumption that all actors are self-interest maximizers.

Rational choice theorists apply the tenets of this theory in a variety of approaches, some more rigidly than others. Some authors choose to apply the method more generally as an efficient way of gathering hypotheses and data, starting with simple assumptions and working with them in a controlled environment to give explanatory power.

The rational model of decision making suggests that policies are subject to a multi-step analysis which includes:

a) identifying or isolating the problem;
b) identifying and ranking objectives/goals/issues which guide the decision making process;
c) outlining alternatives/options to address these issues;
d) identifying possible impacts (direct & indirect);
e) ranking these alternatives, using preset criteria; and
f) designing a model for implementation.

(Carley, 1980, chap. 2; Pal, 1991, chaps. 3 & 6).

A much more detailed series of steps for use in the "real world" of applied policy analysis is provided by Hogwood and Gunn. They add the concepts of implementation evaluation and decision mechanisms for maintenance or termination of programmes to the policy analysis environment. Depending on the type of problem and other factors, these elements can be utilised with greater or lesser degrees of effectiveness (Hogwood & Gunn, 1984, pp. 78-249).

Notwithstanding the fact that some hold that the rational model cannot be used in comprehensive analysis, but rather, should be applied in limited environments,

a wide variety of specific techniques are available to enhance rational analysis in the formulation and implementation of public policy within this field of study. The CRTC, for example, employs cost utility techniques, such as:

a) **Cost Benefit Analysis** - usually employed for comparing one programme with another (Carley, 1980, pp. 97-99).

b) **Cost Effectiveness** - used when benefits are not monetarized - i.e., compares non-monetary benefits to monetary or non-monetary costs. Analysts try to determine the best mix of inputs (least cost) to satisfy the stated objectives (benefits) (Carley, 1980, pp. 97-102).

c) **Evaluation Research** - employed across all policy areas, not only by bureaucrats but also extensively by business and other interest groups in assembling briefs for presentation to task forces, regulatory agencies, advisory councils, and, indeed, to senior bureaucrats. Among other things, evaluation research is concerned with impacts (direct and indirect) of programmes and the process of carrying them out. Impact analysis attempts to measure the extent to which a programme produces the desired social or economic change and the extent to which the changes can be attributed to the programme being implemented rather than some external cause or condition (Carley, 1980, chap.,10; Pal, 1992, chap. 3).

### 2.5.1 *Public Choice Theory*

Public Choice Theory holds that political actors - be they voters, bureaucrats, media personnel or politicians make choices and decisions based on self-interest, utility maximization, and benefit to the decision maker - in essence, a personal cost benefit analysis. It argues that this is the only assumption that has explanatory value in predicting the outcomes of the policy process; i.e., public policy can be understood and predicted if self interest is considered to be the prime motivator of all actors. Collective decisions are seen as aggregations of individual choices. Collective response is mobilised when sufficient people find it in their best interest to act. The theory likens political activity to market exchanges.

Public choice assumes that, all things being equal: a) actors will choose more rather than fewer goods and services; b) actors will make "allocative" choices - i.e., rank preferences in light of limited resources; c) although individuals have stable preferences, they will make choices based on cost evaluations specific to the issue at hand; d) actors do not have perfect knowledge of all the options available and there is a cost to obtaining the information that is included in choices; and e) actors will have different scales of preference i.e., some may be more individually self interested (personal gains) while others may be more concerned with society more broadly (Sproule-Jones, 1993, pp. 5-7; Buchanan & Tullock, 1965, p. 29-35; McLean, 1987, pp. 18-19).

One can use this approach to explain the motives and actions of three of the five groups mentioned - bureaucrats, interest groups and politicians which are of interest in this work. **Bureaucrats** pursue goals in the most efficient manner open to them and are motivated by factors such as, a) power obtained through increasing the size of departments and budgets, b) income, c) prestige, d) security, e) a symbiotic relationship with the minister, and f) the desire to keep those above them happy (Downs, 1967, pp. 2 & 84; Trebilcock et. al., 1982, pp. 13-15 & 27). **Interest Groups** try to maximize benefits by influencing governments to change the rules in their favour. The power of interest groups is positively affected by the availability of money and by size. A small interest group is more efficient because it can avoid free riders. The focused well-endowed business lobby is generally better able to influence policy outcomes than a large,loosely structured volunteer association (e.g., social action interest groups) (Trebilcock et al., 1982, pp. 7-10). **Politicians** whose prime motivation is the potential for election or re-election maximise their possibilities for election by positively influencing the electoral decisions of marginal (uncommitted) voters (Trebilcock et.al., 1982, pp. 4 & 5). Governing parties will tend to treat powerful well funded interest groups like marginal voters because these groups may be

able to influence the electoral choice of the former (Trebilcock et. al., 1982, pp. 33 & 38).[5]

The thinking behind public choice theory, i.e., utility maximization by all actors, provides a rationale for the formation of networks within policy communities (See last section this chapter.) It may also account, in part, for the relative power of some networks in the community. In the telecommunications policy community (discussed in chapter 3) the strength of the carriers in the dominant network, for instance, might be explained, in part, by politicians' tendencies to treat them as marginal voters.

## 2.6 Political Institutions

The influence of state institutions in shaping the output of public policy is the subject of an important political science research area that is relevant to this study. Institutional design of political systems is a key variable in the degree to which citizens are able to participate in the political process and a major determinant of how each state develops and implements policy. Although some assume that institutions have a causal capacity, it is unlikely that there is a simple causal connection between institutional and policy change; rather, there is a strong inter-relationship between the two as institutional change is partial and uncoordinated and policy change is likely the result of a number of discrete changes (Atkinson, 1993b, pp. 17-20; Weaver & Rockman, 1993, pp. 5-18).

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[5] Many find that the singular assumption of self-interest maximization is too confining to give the theory predictive power. Authors such as Milton Friedman (1953) and William Riker (1962) and even Buchanan, Tullock and Downs who are discussed as core Public Choice theorists make some concession to the existence of goals other than self-interest maximization in explaining why people will do things that appear to be individually irrational because they are socially rational. Downs (1967, p. 9) for instance, concedes that no account of human behaviour is complete without a mention of altruism.
For additional information on the arguments of these two authors see: M. Friedman. (1953). Essays in Positive Economics. Chicago: University of Chicago Press; W. Riker, (1962). The Theory of Coalitions. New Haven, CT: Yale University Press; W. Riker, and P. Ordershook, (1973). An Introduction to Positive Political Theory. Stanford, CA: Hoover Institution, Stanford University.

Political institutions shape the processes of decision making and policy implementation, thus influencing a state's capability and, ultimately, its policy outputs (Weaver and Rockman, 1993, p. 7). State institutions can be both constraining and creative. They can, for instance, create decision processes with few access points (therefore limiting the number of interest groups that can take part in the decision process), under-fund programmes, or use decision-making rules and processes which allow very small groups to resist change and maintain the status quo. According to Atkinson, the tenets of rational choice theory can be used to understand these constraining effects of institutions. Institutions do not change rapidly and often require coercion to do so because, among other reasons, a) actors search to shrink their responsibilities (free-rider problem), and b) they are reluctant to share information because of the costs of obtaining it. Institutions constrain public policy because of power relationships which are tied to rules that determine agendas and control access to resources. On the other hand, however limited and confining we may find the bureaucracy, it has made possible all the services of modern states (Atkinson, 1993b, pp. 23-27).

Each policy domain within a state is different; some are more open than others. The degree of exclusivity of the domain tends to be shaped by the costs and benefits of collective action within them. Institutions can nurture technical discourse and allow policy knowledge to accumulate or change the whole nature of the discourse as was the case when the Charter of Rights and Freedoms was introduced to the Canadian constitution (Atkinson, 1993b, pp. 37-41).

The major state institutions in Canada are the constitution, Westminster Parliamentism, federalism and the Charter of Rights and Freedoms. While the parliamentary system concentrates decision making in the hands of the cabinet, the large multifaceted public service and the array of external agencies such as crown corporations and regulatory agencies, have fragmented the policy-making capacity of government. In Canada, this diffusion is augmented by the institution of federalism and the relatively recent

addition of the Charter of Rights and Freedoms to the constitution which positions the Supreme Court of Canada as a significant player in policy formulation. Some argue that this fragmentation makes for a weak state. Others hold that it makes for more flexibility in responding to the modern diverse political community (Atkinson, 1993a, pp. 9-11).

Although the Westminster system tends to concentrate power in the cabinet, a number of factors constrain the potential strength of the Canadian cabinet. Those of interest in the telecommunications policy area include the unwritten rule of appointing regional ministers, the presence of regional caucuses within the parliamentary caucus, the high turn-over of M.P.s and ministers, and the weak coordinating capacity of the central agencies which are meant to support cabinet. The overlay of regional responsibility in the cabinet weakens the departmental autonomy in functional areas (e.g., communications) because while one minister may be nominally in charge, another may exercise his/her regional prerogative creating a dichotomy between sectoral and spacial roles (Bakvis & MacDonald, 1993, p. 49).

The construction and decision-making rules of the cabinet, including the authority afforded by the Westminster system, means that the Canadian cabinet can engage in strategic behaviour in a limited number of policy areas - e.g., the National Energy Policy (NEP), Free Trade, and the Goods and Services Tax (GST) - often in the absence of political consensus. This extends to cabinet's active role in promoting the use of various telecommunications facilities, including the most recent - the information highway. However, policy formulation is vastly influenced by particularistic demands from various sectoral or regional interests. In the 1980s, the rise in influence of both interest groups and portfolio responsibilities seriously challenged the geographical representation in the country (Sutherland,1993, pp. 90-91). And indeed, the demands for more openness and participatory democracy combined with the cabinet tradition of secrecy, have called the overall legitimacy of cabinet government into question (Bakvis & MacDonald, 1993, pp. 63-75).

Modern states are dependent on the institution of the bureaucracy. The policy capacity of the civil service as an institution is affected by the following factors:

a) The willingness of politicians to listen to the advice of senior professional civil servants. If politicians do not consider the civil service as a partner, the departments become subject to the power of the central agencies and the regulatory agencies.
b) The degree to which corporate research is conducted within departments (e.g., legislative, financial, policy proposals of interest to the minister and pure scientific research). Conservative governments have been opposed to developing in-house capacity, preferring to use universities, think-tanks, and the private sector.
c) The lack of a party system in Canada that has strong ideological grounding means that parties do not provide guidelines to the civil service.
d) Lack of continuity of parliamentary elites. This lack of experience has some influence on the role of other institutions - most particularly, the bureaucracy (Sutherland, 1993, pp. 97-100).

In subsequent chapters, we will see the influence of the Canadian institutions in shaping telecommunications policy. For instance, we will see the effect of the changes in the regulatory agencies which correlate to the changes in the bureaucracy. The data will show a growth in interest groups which results in the interplay between spatial and sectoral responsibilities of the cabinet. In the telecommunications domain this translates into a counterpoint of needs, as articulated to the cabinet and bureaucracy, on the one hand, by large organised national interest groups, and on the other through, actors from largely rural provinces.

## 2.7 Pluralism and Interest Groups Theory

The previous section discussed how institutions influence public policy. Another significant determinant of policy is "interest". The theorists in the pluralism and

interest group schools are worthy of attention in the chapter because they lay the intellectual groundwork for the current concept of the policy community which is the tool of analysis of this work. Authors in the pluralist school purport that power in modern democracies is fragmented and dispersed among a number of political, bureaucratic, and societal groups, whose influences check and balance one another. Features of pluralist states include: a) fragmentation of state authority through a number of departments and agencies, b) a rich assortment of interest groups; and c) a state that has an incremental policy style (Atkinson & Coleman, 1989, p. 78). Some groups are seen as having more power than others, but there is no power elite such as that described by Porter and Presthus, but rather, a plurality of elites. Officials and authorities are informed by, and respond to demands of interest groups in different sectors, and overall policy is usually the result of compromise between actors and groups within and among policy sectors. As societies become more specialised, interest groups are influencing, if not replacing, the role of parties and geographic representation in the political scene. Success in influencing policy depends on resources, and thus questions arise about the dangers of interest groups in a democratic system as some appear to be able to amass more political resources that others - e.g., the business lobby (Pross, 1992, chap. 2). In this area for instance, Stentor, with reported annual revenue among the owner companies of $14.6 billion, in 1995 is likely to be able to exert more influence than say the school boards and public libraries that are identified in Tables 5 and 6 of this study (Stentor, 1995).

In an early work, "Who Governs?", Robert Dahl (1962) traced the origins of pluralism in the United States and presented it as a model for understanding modern democratic states. He showed an evolution from a relatively egalitarian, agrarian culture to an industrialised, hierarchical urban society which concentrated political resources in a dominant patrician oligarchy, through the rise of the entrepreneurial class which split the resources of wealth, education and social standing and lastly to the inclusion of educated artisans and others who rose from the new urban workforces (ex-plebes - often with immigrant backgrounds and modest social standing) (Dahl, 1962, chaps. 2-

4). Therefore over a very short period, governance changed from a system dominated by a few elites to one influenced by different sets of elites with access to different types of resources - a more pluralistic approach.

Power and influence, according to Dahl, was maintained by developing and maintaining effective political coalitions. To do so, political leaders required the assistance of subleaders, who, in turn reached out to constituents and associations. This process was repeated in numerous policy areas, creating the dispersal of power and influence in a pluralistic society (Dahl, 1962, pp. 89-101). According to Dahl, however, the new pluralistic system did not so much represent equality as fragmentation of political resources (Dahl, 1962, pp. 227-228).

Other authors expanded on Dahl's concepts of pluralism and applied them to understanding the policy process in modern states. The nature, size, and scope of modern bureaucracies present numerous access points to specialised groups outside government. The policy-making process is increasingly an interaction between legislative and bureaucratic personnel and members of interest/pressure groups. While interest groups carry out a wide variety of functions ranging from membership self-realisation to their principal and more political objective - integrating and articulating their common interest and demands for public support, legislative aid, and assistance from bureaucrats through a process of negotiation and consultation (Presthus, 1973, pp. 101-106; Pross, 1992, p. 3 & 111-113). Governments, on the other hand, which must interact with major sectors of society, use interest groups as legitimate, rationalised instruments for conducting such interaction and for contributing to the government task of allocation of resources. The pluralist model explains policy outputs in terms of the strength of competing groups and their coalitions. With the increasing specialization and neutrality of the bureaucracy, many feel that perhaps the best route to effecting policy change is through establishing well oiled relations between interest group leaders and their associated bureaucrats (Pross, 1992, pp. 46-48 & 81-83).

Effective interest groups share the following characteristics: a) they are autonomous i.e., have the resources to determine and act upon their common interest without influence from an external agency; b) they have an exhaustive knowledge of the issues and policies related to them; and c) they have the financial and/or other resources to organise sustained representation of the issues and the continuity to have a long-lasting effect. Interest groups present arguments to government, particularly to senior bureaucrats and arouse public interest so that others will join in convincing government to the group's point of view. They may also imitate trade union tactics by withdrawing services from boards and committees thus denying government easy access to information on the sector (Pross, 1992, pp. 3-12).

The role of interest groups in Canadian policy making has grown from negligible to substantial since confederation, and their influence has increased significantly since the 1960s (Pross, 1992, Table 2-1, pp. 22-23). We can see evidence of this increase in the telecommunications domain in Tables 5, 5A, 6, and 6A.

Legislatures, which have traditionally been organised along spatial or geographic lines, cannot adequately address the needs which cross geographic boarders. Interest groups represent spatial sectors and naturally align themselves with the bureaucrats who oversee departments and agencies which relate to their interests. There is a resulting tension between interest group constituencies and territorial constituencies, which presents an ideological challenge to current Canadian government (Pross, 1992, p. 24).

## 2.8 Policy Communities and Policy Networks

Although the pluralist model has many strengths, it has given way to other approaches which also deal with such factors as the influence of differing "state capacities" in shaping interests and imposing state preferences on society, the difficulty of organizing and maintaining interest groups, and the differential in status among these groups. The most recent model describing the complex set of factors that result in public policy is centred around the concepts of policy communities and networks.

This model draws upon the state-centred and pluralist approaches, as well as aspects of a number of earlier theories that have been briefly described in this chapter. The "policy community" refers to all actors (individuals and groups) in a policy sector.

> It is that part of a political system that has acquired a dominant voice in determining government decisions in a field of public activity. It is populated by government agencies, pressure groups, media people, and individuals, including academics who have an interest in a particular policy field and attempt to influence it. (Policy) Networks are the relationships among the particular set of actors that forms around an issue of importance to the policy community.... Policies...tend to take shape over time and have long term implications. The communities that coalesce around policy fields reflect that continuity.... They precipitate network formation by policy actors who are drawn to make common cause with those whose interests are, or may be, similarly affected by efforts at issue resolution (Pross, 1992, p. 119).

Members of a policy community will have different reasons for involvement, their approach to policy may also differ, and indeed, they may be in conflict over policy issues. Their link is an interest in a particular field. Policy networks, on the other hand, while part of the policy community, are composed of individuals or groups that are of like or similar mind on an issue. The actors involved have a particular stake in a specific issue, and the composition of the network remains fluid as the issue is refined and concerns are raised or resolved (Pross, 1992, p. 118-120; Pal, 1991, p. 111; Pratchett, 1994, pp. 76-78; Coleman & Skogstad, 1990, p. 25; Atkinson & Coleman, 1992, pp. 157-158).

Policy networks have developed due to a number of factors including: a) the continuing emergence of a society organised as collectives - e.g., unions; b) the trend to more sophisticated sectors in the policy arena; c) the increased scope of the state; and e) the blurring of boundaries between the public and private sectors - e.g., crown corporations, government joint ventures, etc. (Jordan & Schubert, 1992, p. 11). The degree to which both the public and private sectors are strong or weak influences the types of policy networks that develop.

Although there appears to be considerable consensus on the underlying concepts related to policy communities, authors have a variety of approaches to operationalising them. Atkinson and Coleman are said to have taken a structural approach. They posit that the degree of state autonomy and capacity, and the strength and organization of interest groups determine the types of relationships of policy networks that develop in a nation. They hold that if decision making is concentrated in a single agency or department, then it is able to dominate relations in a specific sector and enable strategic thinking and long-range planning in the sector. In strong state sectors: a) bureaus have a clear concept of their role and value system; b) bureaucrats have a professional ethos distinct from the prevailing industry; c) bureau responsibilities are defined by law or regulation; and d) they generate their own technical and other information. A strong or mobilised business/interest sector will similarly have the capacity to generate its own information, associations will have the capacity to bind member firms to agreements, and there will be an absence of overlapping associations so that the government will deal with only one (peak) association in a sector (Atkinson & Coleman, 1989, pp. 80-81).

In a later work, Atkinson and Coleman (1992) re-emphasise the structural parameters, stressing the need to be aware of networks and their relational patterns at the micro- (individual), meso- (sub sector and group) and macro- (state) levels. They maintain that if one ignores the influence of the state and its capacity and autonomy, one will not have a true picture of how policy networks develop. Macro-level norms set the context for network development. However, the relationship is, in reality, symbiotic, and policy networks can eventually change the state's policy style. Jordan and Schubert concur with this analysis of mutual influence between state and societal actors (Atkinson & Coleman, 1992, pp. 159-166; Jordan & Schubert, 1992, p. 16).

Using these parameters, these authors state that if both the state, or state sector, and the interest/pressure groups within it are weak then one of the following pluralist networks arise:

a) Pressure pluralist in which the state maintains some autonomy but is confronted with a wide variety of interest groups each with a slightly different agenda.
b) Clientele pluralist in which not only is the state's authority dispersed, but it also becomes dependent on the interest groups for information, thus allowing a more direct input to the policy process.

If, on the other hand, both the state, or state sector, and the interest groups sector are strong, concertation networks arise. Here, a small number of interest groups represent mutually exclusive but non-competitive interests, and government and interest groups deal on equal terms. Corporatist networks are a subset of concertation networks. Corporatism is an institutional arrangement whereby public policy is worked out through an interaction between state elites and leaders of a limited number of corporate organisations (mainly business and industry, on one hand, and labour on the other). These corporate organisations are given a deliberate representational monopoly. Decisions are influenced by a small number of functionally differentiated but non competitive groups (peak associations) that are licensed or recognised by the state. In corporatist states weaker groups and organised people tend to be left out.

The last type of network, as described by Atkinson and Coleman, is "state-directed". Here a strong and cohesive state dominates the policy area without any reference to associations. There is movement between these types of networks both within a state and within a sector depending on the macro-level structures of a state and the maturity of both the policy sector and the interest groups within it (Atkinson & Coleman, 1989, pp. 82-87; Coleman & Skogstad, 1990, pp. 26-31; Pal, 1992, pp. 110-113). This classification is supported by other authors (Chalmers, 1991, pp. 60-62).

Pross takes a different approach to describing the relationships between interest groups in the policy community and the relationships between them. He divides the policy community into the subgovernment and the attentive public. The former tends to be a small group of policy makers - e.g., the minister in charge of the department; his/her

senior officials; in Canada, the provincial or federal counterpart, as appropriate, and representatives of a few significant interest groups. Representatives of other related agencies, such as the CRTC in telecommunications, also form part of the subgovernment, as do, from time to time, members of parliament whose constituency is particularly effected by a field and representatives of the central agencies. The attentive public, on the other hand is more loosely knit and consists of the media, academics, other interest groups, and possibly, foreign governments or other departments who are less closely associated with the field. The attentive public is not as cohesive nor does it have the power of the subgovernment (Pross, 1992, pp. 121-127; Pal, 1992, pp. 109-111).

Lindquist (1992) expands upon both the Atkinson/Coleman and Pross models. To the former, he adds a description of the ideal role of government managers in each type of network. For instance, in cases where concertation networks form, Lindquist holds that often, implementation of policy is delegated to the interest groups and government takes the role of monitoring. In a corporatist network, as defined by Atkinson and Coleman, the principal role that Lindquist sees for government is to ensure that both sets of interests come to acceptable policy solutions that are beneficial to society at large, and also to assure that the sides avoid deadlock (Lindquist, 1992, pp. 135-142).

Pross divides the a policy community into sub-government and the attentive public. Lindquist, building on the work of Sabatier and Jenkins-Smith on advocacy coalitions[6] adds the dimension of dominant, contending and emerging networks within a policy domain. Each network or coalition is seen to have subgovernment and attentive public members. However, at any given time, one network will usually dominant the policy community. That is the government bureaus and interest groups involved will have more resources, human, financial and political, to attempt to translate their position

[6]For discussion of this concept see P.A. Sabatier. (1987). "Knowledge, policy-oriented learning, and policy change: An advocacy coalition framework". Knowledge. 8(4) pp. 649-692. and H.C. Jenkins-Smith. (1990). Democratic Politics and Policy Analysis. Brooks/Cole. Pacific Grove, Ca.)

into policy. The dominant network might consist of a number of well endowed pressure groups, a peak association, central federal government department, key provincial governments and membership from among high profile think tanks. Another network with an agenda different from that dominating the policy community at the time might form a coalition consisting of other federal departments and agencies, other provincial governments, interest groups which are likely to be less cohesive and resourced and might have a more loosely associated attentive public membership. This "contending" network will operated a little further back from the core of policy formulation and implementation. A step further back again one might find groups and individuals and interest groups who are just beginning to coalesce around an agenda to form an emerging network. (Lindquist, 1992, pp. 145-149).

In Europe, other authors such as Jordan and Schubert (1992) and Frans Van Waarden (1992), apply different factors and characteristics to categorizing the different relationships that define policy networks and communities. These authors hold that the dichotomous grouping (i.e., usually weak states with pluralist networks and strong states with corporatist networks) is too limiting, partly because nations do not sit on ends of this continuum. Further, they feel that the distinctions in these models are too hard to operationalise. Jordan & Schubert prefer the use of the following three variables to describe networks.

a) The level of institutionalization and, in particular, "stability".
b) The scope of the policy making arrangement (i.e., whether it is sectoral or trans-sectoral).
c) The number of participants (i.e., whether the network is limited to a few participants or is it more open) (Jordan & Schubert, 1992, pp. 1-2).

Van Waarden applies yet a different set of dimensions: number and type of actors, the function of networks, their structure or the relationship between actors, their level of institutionalization, their rules of conduct, the power relationship or distribution of

power and lastly the strategy of actors in the network. Based on these properties, which again the author holds have tangible characteristics, Van Waarden produced a much expanded and more finely tuned list of policy network types (Van Waarden, 1992, pp. 32-38).

The scope of this thesis is to track changes in the Canadian telecommunications policy community during the last 15 years and subsequently explore the potential of the current community to support the implementation of an alternate policy approach to support rural areas. The thrust is not the creation of typology but rather an analysis of change as it relates to policy implementation. For this reason the more general models described by Pross, Linguist, and Atkinson and Coleman will be used to demonstrate the change. While the detailed categorizations referred to above could be of interest, the quantity of data that would have to be collected is beyond the scope of this study. Depending on the trends found in this research, a more detailed analysis might be warranted at a future date.

# CHAPTER 3: DATA INSTRUMENTS AND STUDY FINDINGS

## 3.1 Study Period and Primary Data Sources

### 3.1.1. *Period of Study*

The American and European government studies and other literature cited in Chapter 1 indicated that the move from a regulated monopoly, with its accompanying social contract, to a more competitive and loosely regulated environment, has the potential to have a negative impact on the provision of telecommunications services to rural regions. In the period from 1979 to the present, the CRTC has taken significant steps along the path from regulation to deregulation and competition in the telecommunications industry. (See Table 1, Appendix.) The first significant step occurred in the Canadian industry when, in 1979, the CRTC ruled that CNCP could compete for private line voice and public data communications in Bell territory. Therefore, the date of this decision has been taken as the start point of the present study. For convenience (since the trend towards deregulation is continuing), an end point of May 19, 1995 was chosen as it also marks a CRTC decision of national importance. The recommendations from this decision were published by the CRTC in a document entitled "Competition and Culture on Canada's Information Highway: Managing the Realities", which deals with competition not only between the traditional telephone providers, but also between these providers and the cable companies.

This thesis describes the changes in the Canadian and Newfoundland telecommunications policy communities over the same period. Further, it attempts to determine whether the current policy community could shape and support alternate telecommunications policy options particularly as these policies might affect rural areas. Newfoundland, a province with a proportionately large rural population, was chosen as a case study for this exploration.

### 3.1.2 *Data Sources - National Policy Community*

Government reports and studies such as the Intven and Menard (1992) document, provides a rich source of information on the actors in the dominant policy network and the subgovernment. To confirm this and to provide information on the attentive public, and on contending and emerging networks of the national and Newfoundland communities, primary sources of data were sought. It was assumed that people or groups who made written or oral representations to CRTC regulatory hearings of national impact would be members of the national policy community. No distinction was made between written and oral presentations to eliminate the cost of travel to the centrally convened CRTC hearings as a confounding variable. Those who presented to the hearing on "CNCP Telecommunications, Interconnection with Bell Canada" (Telecom Decision 79-11) and those who responded to the CRTC public notice 1994-130, dated October 20, 1994, which resulted in the May 19, 1995, document were chosen as the "end-point" groups. A "mid-point" group was also chosen: those who made representation to either the "Interexchange Competition and Related Issues" (Telecom Decision 85-19) and/or the subsequent appeal by CNCP to overturn the voice competition section of Telecom Decision 85-19 - i.e., "CNCP Telecommunications - Application to review and vary Telecom Decision CRTC 85-19 (Telecom Decision 86-18)".[7] All four hearings were of national importance and,

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[7] As will be seen later in this chapter the policy community data are presented in aggregated form however full listings of the groups and individuals can be found in the full transcriptions of the hearings. These are as follows.

1. Telecom Decision 79-11. Canadian Radio-Television and Telecommunication Decisions and Policy Statements. Vol. 5, Part 1. April 1979 to March 1980. Section IV. Cite CRT 5.

2. Telecom Decision 85-19. Canadian Radio-Television Decisions and Policy Statements. Vol.11, Part 1(b), July 1, 1985 to September 30, 1985, Section 1A. Cite CRT 11.

3. Telecom Decision 86-18. CNCP Telecommunications - Application to Review and Vary Telecom Decision CRTC 85-19. October 31, 1986. Ottawa. CRTC.

4. The lists of those making representation to the hearings that resulted in the May 19, 1995 report are found under the title Audience Publique/ Public Hearing : Autoroute de L' Information/ Information Highway Index Phases 1 & 2. Hull, Quebec, March 6, 1995. The list is available through contacting the CRTC in Ottawa/Hull, Telephone: (819) 997- 0313 : Fax (819) 994-0218 : e-mail - http://www.crtc.gc.ca

therefore, would be expected to attract a national community, as opposed to others that might have been equally relevant but perceived as more provincial in scope. Among other issues, these hearings dealt with competition for public switched voice services between the two companies.

Of relevance here is that in the public notice for the 85-19 hearing, the CRTC made particular note that despite the fact that the request was being made by the British Colombia section of CNCP, the decision would have national implications. Due to the nation-wide importance of the issues the Commission held two hearings, one in British Columbia and one in Hull - the latter being the more usual point for hearings of national significance. Despite these efforts, only 56 representations were made at the 85-19 hearing, and 67 at 86-18.[8] (See footnote 7.)

As supporting data, information from national commissions/councils that dealt with telecommunications issues in the three periods were used. The data consisted of lists of individuals or groups who made independent representation to, or were asked to participate in these activities. The four activities considered were: a) the Clyne Commission, b) the Spicer Commission, c) the Prosperity Initiative and d) the Information Highway Advisory Council (IHAC).[9]

### 3.1.3 *Data Source - Newfoundland Policy Community*

In the provincial setting, similar primary and supporting sources were secured. During the 1979-80 and 1985-86 periods, the Newfoundland Telephone Company (NTC) was

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[8]The public hearings that resulted in Telecom Decision 92-12, commonly referred to as the Unitel Decision, did permit voice competition between Unitel and the Stentor Alliance, was an equally significant hearing. It was not selected for the mid-point for data collection because it was too close to the end of the study.

[9] See the Reference Section and the end of the document for full citations on the resulting reports, which contain the information on those who participated in each. These commissions and councils among other things, were tasked to seek input from a cross section of the interested groups in the country about a number policy areas in which the federal government was considering changing or formulating new policy directions. Each of these groups toured the country and held open fora as well as invited representatives to round tables and individual meetings to seek public input on these proposed new directions. Telecommunications appeared as an issue in each.

regulated by the Newfoundland and Labrador Board of Public Utilities (PUB). To be as comprehensive as possible, all hearings related to telephony decisions in these two periods were reviewed. Data obtained from the hearings for which there had been a public notice proved most helpful, as presentations at the others were usually limited to the PUB commissioners, representatives of the Telephone Company, and sometimes a representative of the Federation of Municipalities. Only Minutes and Decisions of the public hearings were available for review, as written correspondence from petitioners and other parties were destroyed when regulatory power transferred to the CRTC, which had not wanted the documentation. In a conversation with the current Clerk of the Board (Ms. Carol Horwood), who had also held this position throughout the entire period of the study, the writer was assured that all names of groups or individuals making representation to the PUB during hearings were read into the record. From this perspective, then, the information was as specific as that available from the CRTC Hearings.[10]

Following a Supreme Court ruling in 1989, the Newfoundland Public Utilities Board lost its regulatory power over NTC. Therefore, for the 1994-95 period, the names of groups and individuals from Newfoundland and Labrador who responded to CRTC Public Notice 1994-130 (which resulted in the May 19, 1995 document Competition and Culture on the Information Highway) were extracted to represent the provincial policy community. (See footnote 7.4 for source information.)

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[10] The pertinent Newfoundland Public Utilities Board Public Orders reviewed were as follows.

1979: With Public Hearing: PU-9, PU-14, PU-20, PU-28, PU-29. Without a Public Hearing: PU-4,PU-11, PU-12, PU-16, PU-23, PU-24, PU-25, PU-31, PU-33, PU-34, PU-37.

1980: With a Public Hearing: PU-10, PU-12, PU-19, PU-20, PU-31: Without a Public hearing: PU-23,PU-24, PU-26, PU-28, PU-29.

1985: There were no public hearings in this year as Mr. Andy Wells was added to the Board as a consumer advocate. PU-1, PU-2, PU-7, PU-9, PU-11, PU-13, PU-14, PU-22, PU-23, PU-24,PU-31, PU-32.

1986: Again because of the consumer representative on the Board only one public hearing was held: PU-7. Without a public hearing: PU-1, PU-4, PU-5, PU-6, PU-8, PU-10, PU-15, PU-19, PU-21.

1995: See information on Information Highway hearings in Footnote 7 Item 4.

Little supplementary information was available in the provincial setting particulary for the first two time periods - perhaps an indication of the lack of importance attributed to this policy area by the Newfoundland government. In 1994, the province defined a Provincial Information Technology Strategy. In conjunction with this endeavour, NGL Consultants conducted a series of round tables for which public notice was given. Three of the six round tables dealt with telecommunications-type activity and were held in St. John's, Clarenville, and Corner Brook thus giving a wide variety of people in the province the opportunity to attend without incurring undue costs in travel. Those who attended these sessions and the groups with which the consultants held private sessions were included as supporting data in defining the Newfoundland policy community (NGL, 1994).

Finally, information was sought on the mandates of several provincial agencies that were known to have a high profile in the telecommunications area in 1994-95. The objective was to determine when they were formed and to see when in the period of study they would have begun to play a role in the policy community. These groups were included in the supplementary information on the provincial community.

### 3.1.4 *Data Sources - Alternate Policy Options*

Government studies and other secondary literature sources from the United States and Europe, notably from the U.S. Congress, the Organisation for Economic Cooperation and Development (OECD) and the European Communities Commission (ECC) (see Chapter 4 this study) were the principal sources of these options.

### 3.1.5 *Data Sources - Impact of Policy in Rural Newfoundland*

Information on the impact of current and possible implementation of alternate policy on rural areas in Newfoundland was gathered through limited application of open-ended questionnaires in either face-to-face or telephone settings. These questionnaires were slightly different in construction, depending on the respondent, but each focused on obtaining the same general information:

a) What, if any, was the impact of the changing telecommunication environment on the institution/enterprise which the respondent represented?
b) What, if any, was the perceived impact on the community and region?
c) Which community actors, if any, were active in the telecommunications area?
d) What possibilities existed, if any, for actors to support an alternate policy approach, given current government policy directions?

The individuals who were selected represented: a) small rural businesses and public institutions in rural communities, b) telecommunications carriers, and c) members of provincial government departments who had responsibility for telecommunications. The questions asked of this last group also sought information about the potentially changing role and impact of the provincial government in the national arena.

### 3.2 History of the Telecommunications/Carriage Industry

The following brief review of the telecommunications industry in Canada and in Newfoundland identifies the major industrial players and their roles in the policy community, and provides some context for their dominance in the community. Further it describes the significant role that provincial and federal governments have played in the deployment of telecommunications infrastructure. It should assist the reader who may be less familiar with the telecommunications area to interpret the discussion presented on the policy communities.

Historically, the telecommunications carriage industry began in Canada in 1846, when a telegraph service was established between Hamilton and Toronto (Communications Canada, 1992b, p. 7). Telegraph (essentially an early form of data transmission) services grew rapidly across the country in parallel with the construction of the railway. For most of the century the two main suppliers of telegraph services were the Canadian National (CN) and Canadian Pacific (CP) Railways (Babe, 1988). CP and other companies extended telegraph lines throughout the years subsequent to 1846, and by 1886, CP had completed a coast-to-coast service. Following the merger of a

number of smaller telegraph companies to form CN in 1921, the consolidation of the services of the companies involved provided a second coast-to-coast service. Telegraph services, which were the most efficient form of communications in the latter part of the last century, remained an integral part of the industry until the 1980s (CRTC, 1980b, p. 188; Babe, 1990).

As the century progressed, demand for voice services increased. As a result, by the end of World War II, CN and CP began working more closely together in this area, and in 1961, they effectively began joint operations of their telecommunications divisions which included operation, maintenance, and construction of microwave systems and equal sharing of expenditures and revenues (CRTC, 1980b, p. 188).

In 1874, A. G. Bell invented the telephone (i.e., voice telecommunications) and within four years, Bell Telephone Company of Canada was given a sweeping charter, with few restrictions, to establish and provide telephone service to all of Canada. For a few years Bell was the only provider of telephone facilities in the Dominion. In 1885, the first independent telephone company was established in Prince Edward Island. Independent companies were established by provinces, municipalities, and railway companies. For the most part, these companies were established because Bell was more interested in serving the large, urban centres and the more lucrative heavy-traffic routes. At one point there were 676 independent companies in Ontario alone (Babe, 1990, pp. 65-90). Over time however, Bell eliminated or absorbed all but a few of these companies, despite regulation, by applying internal cross-subsidies between local and long distance rates and by securing favourable "interconnection" decisions from the CRTC.[11] Many claimed that this allowed Bell to charge predatory prices for use of its facilities by other companies. The issue of whether Bell was, and is, a natural

[11] A later section describes the regulatory bodies that have ruled on the tariffs and allowable activities of the various telephone companies in the country. See "Laws and Regulations"

monopoly as well as the related issues of interconnection and the associated rating systems have been central to regulatory decisions until the present decade.

The demand for long distance services grew rapidly soon after the establishment of local telephone services throughout the country. This lead to the formation of the Trans Canada Telephone System (TCTS) in 1931. Prior to 1931 long distance calls in Canada were routed through the United States. Interestingly, in the first TCTS arrangement linking cities across the country 25% were dependent on CP's intercity facilities. CNCP continued to provide portions of the facilities to the Bell alliance until the mid-1960s (CRTC, 1980b; Babe, 1990).

With the advent of communications satellites in the late 1960s and early 1970s, two other major carriers entered the arena - Telesat (1969) and Teleglobe. The latter is the successor of the Canadian Overseas Telecommunications Company (COTC) which had been established in 1949 (Communications Canada, 1987, pp. 44-45).

Currently the largest telephone company of each province plus that of the North West Territories, all of which are Bell affiliates, have formed an alliance and operate under the one umbrella company, Stentor (formerly, Telecom Canada, and before that, TCTS).

In addition to the Stentor Alliance, the following comprise the major telephony carriers in the country:

> **Unitel Communications Inc.** - operates its own national fibre and microwave system and competes directly with the Stentor alliance in all provinces. Its primary mandate is provision of services to business customers.[12]
> **49 independent telephone providers** - principally in Ontario and Quebec.

[12]Unitel Communications is now know as AT&T Canada outside of Newfoundland and Labrador.

**Telesat** - the monopoly provider of all commercial domestic satellite services.

**Teleglobe** - Canada's signatory to the INTELSAT and INMARSAT alliances, which provide international satellite services.

**200 radio common carriers** - providers of mobile radio services.

**13 cellular radio companies** - at least one in each province, usually a subsidiary of the largest telephone company (Communications Canada, 1992b, pp. 14-16).

### 3.3 NEWFOUNDLAND TELECOMMUNICATIONS HISTORY

A similar history of development of the telegraph and telephone industries occurred in Newfoundland, with the eventual evolution of a predominantly Bell-based monopoly. (See Galgay, McCarthy & O'Keefe, 1994.) In 1852, only six years after the establishment of the first telegraph circuit in Ontario, the first telegraph line was run between St. John's and Carbonear by the Newfoundland Electric Telegraph Co. By 1856, a submarine link to Nova Scotia was completed by the Newfoundland and London Telegraph Company. The on-Island cable laid at this time was the only service until 1877. Then due to increased demand, the government began a telegraph service to larger rural towns in conjunction with the Anglo American Telegraph Co., which significantly increased the available infrastructure. In 1893 Reid Railway signed a 50-year contract to complete and operate the telegraph service along the railway line. In 1900, the Bond government cancelled this lease arrangement and began an alternate rural telegraph service. There were now three telegraph services in Newfoundland - Reid Railway, Anglo American Telegraph and the Newfoundland Government service. The government's drive to provide small communities with telegraph service continued through these companies and the Commercial Telegraph Co. until 1910.

In the international arena, the first trans Atlantic cable link between Newfoundland (Heart's Content) and Ireland was completed by the Anglo American Telegraph Co., complementing Newfoundland's position on the Atlantic trade route. In 1901, on

Signal Hill, Marconi received the first trans-Atlantic wireless signal, a technology which threatened the trans-Atlantic cable companies like the Anglo American Telegraph Co. As the final extension in the progress from telegraph to telephone internationally, in 1955 the COTC began laying the first trans-Atlantic telephone cable from Newfoundland (Clarenville) to Scotland (Oban).

In 1878, the first private telephone, a non-Bell offering, appeared in St. John's. In 1884, Bell offered to lease its patent rights to Anglo American Telegraph Co., and in 1885, the first public telephone was put in place - a service limited to St. John's until 1900, at which time the Company began providing local service to other communities on the Avalon Peninsula.

Continuing its attempts to provide telecommunications services to rural Newfoundland, the government, in 1912, began to provide telephone links from small post offices to the nearest telegraph office, which was less expensive than providing full access to the telegraph system. This practice continued until 1949. With Newfoundland's entry into confederation, Canadian National (CN) Telegraph took over the Newfoundland Post and Telegraph system and started to upgrade both telephone and telegraph services in its areas. This system became the nucleus of the Canadian National Telegraph System in the province and later again became Terra Nova Telephone (TNT), part of the CNCP Alliance, which provided telephone services to much of rural Newfoundland until its take-over by NTC in 1988.

In 1919, the Avalon Telephone Company, later to become NTC, was incorporated, and the government of the day entered into a 30 year contract with the company giving it exclusive rights to provide telephone service on the Avalon Peninsula. It provided the first long distance service in the province in 1927. In 1938, the Avalon Telephone Company entered into an agreement with Canadian Marconi Company to extend its long distance service to mainland Canada through the use of Marconi's radio facilities.

By 1939 there were four separate telephone systems - Avalon, United Towns on the Burin Peninsula, the Anglo-Newfoundland Development Company (AND) in Corner Brook and the Bowaters Company in Grand Falls. AND and Bowaters were paper companies in Corner Brook and Grand Falls, respectively, and were the major employers in each community until recent years. Each company operated a telephone service for the community in which it was resident. Between 1943 and 1950 the Avalon Telephone Company (ATC) obtained a franchise to service the west coast and purchased both the AND and Bowaters telephone companies. In 1962, Bell Telephone Company of Canada received permission from The Board of Transport Commissioners to issue the necessary shares to purchase the ATC; that same year it also took over the United Towns Telephone Service. Ultimately, in 1969, the ATC changed its name to NTC to reflect the provincial nature of the service. Now, only two telephone companies existed in the province - the Bell-owned NTC and the CN System.

Further consolidation occurred in 1988, when NTC purchased TNT. This was followed a few years later, in 1993, by NTC's purchase of the provincial crown corporation Newfoundland and Labrador Computer Services, which provided all computer services, including networking, to government by NewTel Systems (the parent company of NTC), Anderson Communications (a London-based information technology company), and Bell Sigma. The new private-sector company - Newtel Information Solutions Ltd. (NISL), has been designated the sole supplier of computing service to government for seven years (Galgay, McCarthy and O'Keefe, 1994).

In 1990, following the buy-out of TNT by NTC, Unitel reentered the field as a long distance competitor to the Bell affiliate.

### 3.4 Laws and Regulations

Telephone regulations had their origins in the railway legislation of the 1800s and as such the carriers were subject to the rules that prevented discrimination among customers. In 1892, the Bell Telephone Company Act was amended to prohibit Bell

from raising its rates without approval of the federal cabinet. Early in this century, the Railway Act was amended twice to give the Board of Railway Commissioners of Canada the right to regulate all telephone and telegraph rates (1906 & 1908 respectively). In 1938, federal regulation transferred to the Board of Transport Commissioners, which, in turn, was supplanted by the Canadian Transportation Commission (CTC) in 1967. At the same time, the provisions for the structure and powers of the CTC were moved from the Railway Act to the National Transportation Act. In 1976 federal regulatory power changed again to the CRTC (CRTC Act 5c, 1974, 75, 76) and the powers and procedures were then delineated in the National Telecommunications Powers and Procedures Act. Other regulatory procedures were detailed in the Telegraphs Act (CRTC, 1979, p. 12). In 1992, the federal government introduced Bill C-62 which reviewed and consolidated existing telecommunications legislation into the Telecommunications Act, 1993.

Also of interest to this study (because the existence of digital and fibre optical technologies has allowed technical convergence of broadcasting and telecommunications industry services) is the fact that, in 1968, the fledgling cable industry became subject to CRTC regulation under the Broadcast Act that had been declared that year. In 1975, the first set of cable television regulations was enacted; in 1986, these were streamlined and a more light-handed regulatory approach was adopted for small cable systems (Broadcasting Act-Cable Television Regulations, 1986). And finally, in 1991, just before the introduction of the new Telecommunications Act, a new Broadcasting Act which updated and expanded the provisions of the 1968 Act, as they related to the now mature cable industry, was implemented (Intven and Menard, 1992, pp. 35-40).[13]

[13]Primary sources for laws governing the CRTC in the period of study can be found in the Annual Reports of the CRTC for the time periods - i.e., the Annual Report of 1979/80, 1985/86 and 1992/93.

Through most of the century the telephone companies of the Atlantic and Prairie provinces (the latter being provincial crown corporations) were regulated by provincial public utilities boards. In the case of SaskTel - the Saskatchewan crown corporation, the company reported directly to the minister. However in 1989 when Alberta Government Telephone (AGT) was privatized - now known as Telus - the Supreme Court of Canada ruled that it and the companies in the Atlantic Provinces were essentially interprovincial undertakings and as such were to be regulated by the CRTC (Intven & Menard, 1992, p. 36). Manitoba agreed to allow its telephone company to come under the CRTC regulation when Bill C-62, the Telecommunications Act, became law. By the early 1990s then, SaskTel was the only major telephone company under provincial jurisdiction. It continues to report to the Minister without independent supervision. The smaller independent companies in Ontario and Quebec and the Edmonton Telephone Co., wholly owned by the City of Edmonton, remain under provincial regulation (Intven & Menard, 1992, pp. 35-37, 139-140 and 218-219).

In Newfoundland the provincial regulatory body the Public Utilities Board was created in 1949 (Galgay, McCarthy & O'Keefe, 1994, pp. 235). It maintained jurisdiction over telecommunications in the province through the 1985-86 period until the 1989 Supreme Court ruling transferred regulatory control of NTC to the CRTC.

The owners and regulators of the major telecommunications carriers for three points in the period of study are outlined in Tables 2 and 3, Appendix 1. From these tables, one can observe changes in the core of the policy community from greater to lesser public influence and from decentralized to more centralized control. Although there were many changes in regulations during the period (see Table 1), the only significant change in legislation occurred in 1993, when the new Telecommunications Act was established. Prior to that date, powers and regulation under the old Railway Act were modified to meet the needs of this industry.

### 3.4.1 *The CRTC*

The CRTC has been a substantial presence throughout the period of the study. The Commission has been comprised of 19 members, 9 full time and 10 part-time. The nine full time members are appointed by the Governor-in-Council for seven year terms and form the executive committee. The ten part-time members are appointed for terms of five years and are drawn from and represent all regions of the country. Although they are described as part time, these members actually devote a considerable amount of time each year to the Commission.

In 1978-79 there were 492 staff members in the CRTC, and its budget was $14.9 million. There was an Executive Director, a General Counsel with his staff, and a Secretary General to the Commission with staff. Additionally there were five directorates: a) Planning and Development, b) Telecommunications, c) Broadcast Programmes, d) Administration, and e) Research. There is no mention of regional staff in the annual report for that year (CRTC, 1979a).

By 1985-86, the staff of the CRTC had down-sized to 389, but the budget had increased to $25.0 million. The Executive Director remained as did the General Counsel and the Secretary general and their staffs. The directorates in 1985-86 were: a) Telecommunications, b) Broadcasting, and c) Strategic Planning. The staff now included a total of 14 persons in regional offices located in Vancouver, Winnipeg, Montreal and Halifax (CRTC, 1986).

By 1994-95 the commission staff had increased to 433 with a $34.4 million dollar budget. The three directorates had divided into four: telecommunications, broadcasting, executive management, and corporate services. There were now six regional offices (CRTC, 1994; CRTC, 1995b).

## 3.5 Changes in Composition of National Policy Community

### 3.5.1 *National (Tables 5 and 5A)*

Table 5, (see Appendix 1) which categorises the presenters to CRTC hearings, shows the dramatic changes in the overall composition of the telecommunications policy community, particulary in the period between the mid-1980s and the present. In 1979, there were 68 representations to the CRTC hearing consisting primarily of the telephone carriers, most of the provincial governments, a few communications associations, including the Cable Television Association, and a number of business associations. Almost all "individual users" were representatives of businesses with the single biggest group being computer companies. The press and publishing industries were represented only through Canadian Press. Only one group (with the exception of communications unions) made representation on behalf of workers. The Clyne Commission (which contained the supplementary information for this period - see Section 3.1.2) dealt with matters other than communications, and the author made an informed choice of about which groups could reasonably be included in the supplementary lists of policy community members in Table 5A. The supplementary information from this Commission added but one "social action" interest group and one individual user to those who were identified through the CRTC hearing.

In 1985, despite the fact that the CRTC held hearings in two locations and pointed out the national importance of the proceedings in its public notices, only 56 representations were made. In 1986, in the review hearing dealing only with the competition in voice issues, 67 representations were made. The only significant change from 1979 was that there was a noticeable increase in presentations from social action interest groups - most of which were made in the British Columbia hearing. Little other change can be seen, except that a greater number of carriers outside the two petitioners presented briefs and fewer individual companies were present.

Although no specific details on the participants were available in the reports of the Spicer Commission or the Prosperity Initiative (see Section 3.1.2), the former reported

having heard from 400,00 people and the latter reported having held meetings in 186 cities and five regional centres (Spicer, 1991, p. 4; Prosperity Initiative, 1992, Preface). Telecommunications was not on the planned agenda of either (Spicer, 1991, pp. 147-149; Prosperity Initiative, 1991a, 1991b) however, it emerged during both consultations as a key area for consideration. The report of the Spicer Commission (1991, pp. 45-46) emphasised the importance of telecommunications as a unifying factor and that of the Prosperity Initiative (1992, p. 8) listed the creation of a high speed broadband information highway as one of its key outcomes. Arguably, the emergence of telecommunications in these two national fora, could be taken as an indicator of an increase in individual and group concerns with this area; else, how would the matter have gained such prominence among all the others on the original agendas?

In the 1995 CRTC hearing, 946 separate representations were made. There is a striking difference in the size, although some might argue that a number of these individuals or groups have always been interested through the broadcast policy community, and also in the complexity of the policy community. The carriers, provincial and federal government departments, and communications associations, including the cable association, remained much the same. However, municipal governments and chambers of commerce from quite small communities appeared for the first time, as did a substantial number of individual communications companies. In the latter group were cable companies (21), which were the most numerous from that field - three times more prevalent for instance, than computer companies. Ten publishing or newspaper firms appeared - a group which had previously left its representation to Canadian Press. Labour was much more in evidence with seven representations, and a variety of art, education, health, and research associations appeared for the first time. The numbers of social action interest groups had increased significantly (10 to 79) in absolute terms, if not proportionally, as did the number and variety of individual economic units. As examples of the latter there were 58 schools, school boards or universities, 31 individual arts groups (e.g., Kittiwake Dance

Theatre), 24 hospitals and health centres, and 15 public libraries. Perhaps the most dramatic change however was that 272 (fully 29 %) of the total submissions were made by individuals.

The data from the Information Highway Advisory Council which as mentioned earlier is considered to be supporting information to that obtained from the 1995 CRTC hearing, showed a similar composition of the national policy community.

#### 3.5.1.1 Other Players

In 1990, the **Information Technology Association of Canada** (ITAC) was formed and consisted of 50 companies (ITAC, 1995). By 1994, it represented "450 member firms across the full spectrum of the industry - offering computer and telecommunications hardware, software and services including the rapidly growing electronic information sector. Collectively the companies accounted for more then 70% of the industry's revenues (total $43 billion) and the lion's share of its exports, R&D and jobs." By 1995, these numbers had increased to 1100 member companies representing 70% of $50 billion in revenue, $2 billion in R&D and $12 billion in exports (ITAC, 1994, 1995). ITAC is positioning itself to be the peak association for this industrial sector.

> As the voice of Canada's information industry, ITAC's mission is twofold:
> ...to provide leadership on issues that effect the growth and profitability of the industry:
> ...to promote the effective use of information technology by Canadians.
> This mission is accomplished by a wide ranging advocacy program which focuses on public policy issues critical to member's success. (ITAC, 1994, p. 1).

One of the advocacy positions taken by this organisation in 1993-1994 was the establishment of a Task Force on Public Policy for the Information Infrastructure, which played a significant role in briefing the national Information Highway Advisory Council (see next paragraph) and, through this influence the resulting policy

formulation (ITAC, 1994, p. 9). ITAC also has a number of provincial counterparts or partner organizations which both contribute to and benefit from the national advocacy initiatives. The Newfoundland and Labrador Alliance of Technical Industries (NATI) (see Newfoundland section below) is one such affiliate (ITAC, 1995)

The **Information Highway Advisory Council**, a 29-member group chaired by David Johnson,[14] was created by the federal government in 1994 to advise the government while it developed its strategy for the information highway. As the name implies the Council was to provide advice on policy on all aspects of this vital new area - from infrastructure ownership, and control and interoperability of the networks to intellectual property matters, definition of and how to achieve "universality", and how to support Canadian culture and other content-based products and services (IHAC, 1995, pp. vii/viii). The members of this Council and its associated working groups form the supplementary list of names for the third time period of this thesis. (See Table 5A, Appendix 1 for groupings.)

In March 1992, as a result of an IC initiative, **CANARIE** was established as a non-profit corporation. This corporation evolved from the efforts of 56 organisations in Canada's research, university, government and business sectors which began in the mid-1980s. Its mandate is to facilitate the development of the information highway in Canada as a means of support to wealth and job creation in a knowledge based society. In 1992 there were over 140 public and private sector members and 21 board members 13 of whom were drawn from the private sector (largely communications), 6 from education (almost exclusively universities), 2 research networks, and 1 from IC. It is also worth noting, in the context of the work, that there was only one board member from all of the Atlantic Region.

[14] Also Professor of Law at the Centre for Medicine, Ethics and Law, McGill

The data presented in this section shows a growth in size and complexity of the national telecommunications policy community.

### 3.5.2 *Newfoundland (Tables 6 and 6A)*

Table 6, Appendix 1 categorises the participants in all PUB hearings in the 1979-80 and 1985-86 periods as well as those Newfoundland and Labrador groups and individuals who made representation to the 1995 CRTC hearings. There was no appreciable difference between the 1979-80 and 1985-86 periods in terms of participation. It is interesting to note from the PUB minutes that the major actors were represented by legal counsel. Exceptions, in the few instances in which they did appear, were Memorial University and the hospitals. NTC also was represented by specialized staff appropriate to the hearing - e.g., the Director of Rates and Regulatory Matters, the Vice President of Customer Services etc. There was little or no representation by individuals or social action groups.

The change in the "Individual Economic Units" from a greater preponderance of companies (1979-80) to health groups (1985-85) probably reflected more the nature of the hearing than a change in the policy community. The appearance of the Avalon Cable Company and Newfoundland Hydro in 1985-86 might be interpreted in terms of either the nature of the hearing (in that it was about the cable company being permitted to use the poles of the other two companies), or the beginning of the entry of the cable companies in to the policy community. There is insufficient information for conclusive interpretation, but given the stage of development of the cable industry in the province at that time (Avalon Cable Company was founded in 1975), it was probably the more pragmatic issue of reasonable cost access to a physical facility that stimulated its appearance at the PUB, rather than a more strategic positioning related to policy and industrial change. During the 1979-80 period, the Federation of Municipalities (as represented by their legal counsel) appeared at all hearings for which there had been a public notice. The expenses for appearing were covered, evidenced by the fact that one hearing that did not have a public notice dealt with the

issue of the representative's expenses. The Federation played the role of a consumer representative during the hearing of this period.[15] By the 1985-86 period, Mr. Andy Wells was made a commissioner of the PUB with specific responsibility as a consumer advocate. On the one hand, establishing this position might have limited true public participation, but on the other, it may have reflected the tightly knit groups of lawyers, accounting firms, and industry representatives that comprised the community in the Province at that time.

In Table 6, Appendix 1 one sees a considerable increase in both size and complexity of the Newfoundland community. The numbers participating rose from 12 groups in total over all the hearings in 1979 and 1980, to 51 identifiable groups and individuals in the single 1995 hearing. (It should also be noted that only one "individual" could be clearly identified among the 272 who made representations to the 1995 CRTC. More might have made representation to the Commission who could not be clearly identified as being a Newfoundland resident. If there were others among the 272 then the change would be even more substantial than it appears here.) As on the national scene, in the provincial setting, one also sees a significant increase in the participation of health, education, social action municipal government, and economic development groups as well as the cable company and the newspapers.

The writer was unable to identify provincial commissions, studies, or task forces that dealt with telecommunications in either the 1979-80 or 1985-86 periods. (See Table 6A.) It could be argued that this reflected the Newfoundland government's disinterest in this policy area which is further evidence of a fledgling, if existing, policy community. Two CRTC hearings were held in 1979 and 1980, respectively. [16]

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[15]Confirmed with Carol Horwood, Clerk of the Newfoundland and Labrador Public Utilities Board during the period of study to present.

[16]The CRTC held a Public Hearing in St. John's (Chair: Edythe Goodridge) on June 11, 1979 to discuss the penetration and costs of cable television. In 1980, the CRTC met in Goose Bay. Eleven groups including NTC and CBC Radio representatives, and two individuals presented. This hearing also dealt with access to television. Earlier,

By 1994, however, the provincial government (as indicated in Section 3.1.2) had recognised the need to address the issue of the growing information technology (IT) industry and the role of telecommunications in its development. As indicated earlier, the Newfoundland government commissioned NGL to develop a strategy for stimulating growth in its IT industry. Three of the six round tables conducted by the consultants pertained to telecommunications. They were held in St. John's, Clarenville and Corner Brook - allowing interested parties across the province to attend. In addition to the broader representation seen in the CRTC hearings, a number of government and government-related agencies appeared at the I.T. Round Tables. Three provincial departments (Works, Services and Transportation (WST); Industry, Trade and Technology (DITT) and Education) and two federal agencies (ACOA and National Research Council, through IRAP ) participated in one or more of the sessions. (See Table 6A, Appendix 1)

Also present were economic development groups and new to the community, four government agencies. Three of these (Enterprise Newfoundland Inc.[ENI], The Economic Recovery Commission [ERC] and Enterprise Newfoundland and Labrador[ENL]) have economic development as part of their mandates and the fourth (NLCS), is the provider of computer services and networking to government. As reported earlier, this last agency has since been privatised and is currently a member of the Newtel group of companies, along with NTC. The mandate of ENI, incorporated in 1988, is to promote the growth of business, particulary in rural regions of the province through developing and facilitating the use of value-added computer networks and services in small- and medium-sized businesses. The ERC, created by the newly elected Liberal government in 1989, was "an agency of the Government of

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in February 1978, a "Northern Communications Conference" was co-sponsored by DIAND, Secretary of State, and MUN Extension Services, in Makkovik, Labrador, which, despite its more inclusive sounding name, discussed only the issue availability of satellites for broadcast of television and radio. Thirty people from Labrador communities plus eight resource people from St. John's (six from MUN and two from the provincial government) attended. Neither, as can be seen, dealt directly with telephony services (CRTC, 1979b, 1980c; Extension Services, 1978).

Newfoundland and Labrador. Its mandate is to act as a catalyst for change in the public and private sectors. The ERC initiates policies, programs and actions aimed at expediting the transformation from the old to the new economy." (ERC, 1994, p. 34). In its third Annual Report, it stated that as part of it attempts to stimulate the economy, the ERC recommended to government that the government must spend money on capital works to improve strategic infrastructure, even in times of fiscal restraint. One area that the ERC supported was "improving the communications links between the province and other parts of the world" (ERC, 1993, p. 16).

Also at these round tables one sees for the first appearance of the Newfoundland Division of the Canadian Information Processing Society (CIPS) and the Newfoundland and Labrador Alliance of Technical Industries (NATI). These agencies have among their other functions, the role of advocacy for professionals and companies, respectively, in the area of information technology, including the promotion of the value of high quality and appropriate speed digital networking services throughout the province as a support for economic and business development. ENI, CIPS, and NATI were incorporated in 1998, 1991,[17] and 1991, respectively (NATI Membership Brochure). Each provides focus to the positions of the many individual businesses and professionals which they represent.

### 3.6 Intra-Group Changes in the Policy Community

The principal stakeholders in the telecommunications policy community throughout the first century of the industry were:

a) government departments - federal and provincial;
b) regulators - federal and provincial; and
c) telecommunications carriers (land, radio, and satellite).

[17] CIPS was formed at the national level in 1958, at which time there was a Newfoundland branch. However, after only a few years, the Newfoundland division became inactive. In 1991, at the annual general meeting in Montreal the Newfoundland division was reinstated (Source: CIPS Membership Brochure and personal communications with Sandy Eaton, currently Viking [Newfoundland] Division President.)

The status quo has altered only in the last period of the current study, with significant roles being assumed by two new entries - the judiciary in 1989, and the cable companies during the period 1904-95. The heightened role of the judiciary was discussed in Section 3.4. The data in Tables 5 and 5A indicate the change in positioning of the cable companies within this community. In the 79-11 proceeding the cable companies were represented only by one association but, by the 1995 hearings they were a principal intervener and were represented by five associations and 21 individual companies. A number of noteworthy changes have occurred within these groups, however, in relation both to the change in policy direction and to the possibility that an alternate policy might be supported in Newfoundland or any region with large rural areas. These changes are described in the following three sections.

### 3.6.1 *Changes in Industry Ownership and Power Changes*

The most significant structural change is demonstrated in Table 2, Appendix 1, which shows a decrease in government ownership and a shift to privatization over the study period and, therefore, could signal a corresponding decrease in governmental strength in the dominant policy community.

Other ownership and power changes among the major stakeholders include the following:

1) In 1988, CP purchased CN's partnership interest in CNCP. Subsequently, in 1989, Rogers Communication (a cable giant) bought 40% of the equity in CNCP and the name was changed to Unitel Communications Inc. (Intven & Menard, 1992, p.143). Rogers now owned 32% of Unitel. This company now consisted of 14 cable television systems with 1.8 million subscribers, 16 radio stations and the country's largest cellular telephone company with 480,000 subscribers (Maclean's, 1992, p. 32). This, for the first time, brought the cable industry (Rogers) squarely into the centre of the industrial players in the telecommunications policy community. Unitel experienced considerable financial uncertainty after 1988 which resulted in a $695 million dollar

debt held by a consortium of Canadian Chartered Banks. An October 1995 agreement in principle was reached with AT&T Canada, a subsidiary wholly owned by the American company, which took Unitel's founding owners out of the picture when AT&T purchased CP's 48% and Rogers' 29.5% of the holdings. This ended CP's long history in telecommunications in Canada (Maclean's, October 9, 1995, p. 46).

We see here two significant movements in the policy community: a) further evidence of decreasing government influence, and b) the presence of the cable company in an important role. There is arguably a third factor in play here - a further consolidation of the telecommunications industry in Canada.

2) Telesat, the monopoly provider, of domestic satellite facilities (ground and space segments) in Canada was incorporated in 1969 as a private sector (Telecom Canada) - public sector (Federal Government) joint venture. At that time, the minister responsible, Eric Kierans, made an informal deal with the carriers, which would later become policy, that Telesat would lease only to the carriers. The sole exception was CBC, a federal crown corporation. The telephone companies had a built-in disincentive to use satellites because they had so much invested in land-based facilities that were guaranteed a 10-12% return on investment whether they were efficient or not. This had a detrimental effect on the financial viability of Telesat. In 1976, the TCTS alliance threatened not to use satellites at all if Telesat did not become a full member; Telesat did so and became eligible for the same consistent high rate of return on investment that the telephone companies enjoyed. With this move, however, it lost its control over the ground segment (Television Receive Only Terminals [TVROs] and other earth terminals) and its right to sell channels directly to the CBC. It was now officially a carriers' carrier.

Table 4, Appendix 1 shows that throughout the study period the federal government and the CRTC made several decisions and rulings to make Telesat more accessible to other vendors (e.g., cable) thus increasing the potential for competition from

broadcasters and other telephone companies. The changes in regulation also opened the door for increases in level of services. Note again the shift in power among the telephony and cable players.

3) In 1993, the group of companies that comprised the Telecom alliance changed their corporate structure to become the current Stentor Alliance. They own between them the three Stentor companies - Stentor Resources Inc., Stentor Policy Inc., and Stentor Canadian Network Management. Two issues are of interest here, as they contribute to decreased provincial presence, this time in the industry's own policy decisions.

a. The old Telecom alliance had a unanimity rule which gave each member company an equal say in the policy decisions of the alliance. The power balance was now altered, such that the influence was proportional to the size of the company in the alliance. At the same time, Stentor Centres of Excellence were established in each province, each of which was assigned a unique product development position, for example, Newfoundland was responsible for conferencing services (audio, video and multimedia). The rationale for this move was to streamline the decision-making process in the light of increased competition to allow quicker responses. However, from a provincial perspective this means that Bell Canada - i.e., the company that services Ontario and Quebec, has 51% of the vote in any decision.

b. Stentor Policy Inc. was formed to lobby the federal government. It was comprised largely of representatives of Bell Canada (Stentor, 1995).

4. A decrease in government presence occurred in Newfoundland when TNT, a crown corporation owned by the federal government and CNR, was purchased by NTC in 1988 (Galgay, McCarthy & O'Keefe, 1994, p. 341-342). This meant that by 1988, all provincial telephone provision was in the hands of the Stentor (Bell) alliance.

To this point in this section, then, data appear to support a decrease in government presence, an increase in centralization of power in the industry and increasing attempts by the CRTC to encourage competition.

### 3.6.2 *Changes in Regulatory Influence*

At the same time that there was a retreat from government ownership, and thus government influence, there was a similar decline in the influence of the provincial regulatory agencies of the main telephone providers. (See Table 3.) During the period of the study, all the major carriers came under the influence of the federal regulatory agency except SaskTel. Only a few small companies based primarily in Ontario and Quebec, are still under provincial or municipal control. Thus, there was a marked decrease in provincial influence in this critical area. Interestingly, the influence of the four Atlantic provinces and Alberta was dictated by the Canadian Supreme Court. Only the province of Manitoba relinquished its right voluntarily. (See Section 3.4.)

### 3.6.3. *Changes in Departmental Responsibility*

Federal

The following information shows the changes in departmental responsibility for telecommunications and, also indicates the marrying of telecommunications to the economic policy domain at the federal level.

Pre 1970 Department of Transport

1970 Newly formed Department of Communications: Its mission was "to support Canadian culture as a cornerstone of national identity and to ensure the orderly evolution of Canadian communications and information systems as key elements in the development of the economy and Canadian Society" (Communications Canada, 1992a, p. 4).

1992 Division of Industry, Science and Technology Canada (Industry Sciences and Technology Canada, 1992, pp. 2.44 - 2.48).

1994 Division of Industry Canada. "Industry Canada as a key economic department is mandated to make Canada more competitive by fostering the development of Canadian business, by promoting a fair and efficient Canadian marketplace as well as by protecting, assisting and supporting consumer interests." (Industry Canada, 1994, p. 2-2).

As an example of the change in focus from social to economic policy, the same operational group that, in 1978, travelled the country to seek collaborative research partners and provided engineering and financial support in trials of social and cultural uses of satellites (many of which turned into operational distance education and telemedicine systems) now is looking for commercial applications. CANARIE in a similar initiative promoting the use of the Internet, funds research partnerships that are private sector lead and that will result in commercial products and services.

Newfoundland

As seen below, similar changes in responsibility occurred provincially during the same period.

Pre-1980 Department of Transport.[18]

1980 Executive Council/Intergovernmental Affairs

1987 Consumer Affairs and Communications.

1991 Municipal and Provincial Affairs. During this period, Communications was its own Division under a Director.

1992 Industry Trade and Technology (Govt.Nfld, 1992, p. 46). The Division is now "Information Technology". This group is also responsible to a Director The change signals recognition of telecommunications in this industry and the link between this policy area and economic development.

[18]All dates prior to 1992 confirmed with Hunter Rowe, Director of Communication from 1987 - 1991.

The provincial shift from a social to an economic focus mirrors the federal one. Again telecommunications is linked more closely to the economic environment than in previous decades.

Later sections will classify the telecommunications policy community by the Atkinson and Coleman, Pross, and Lindquist approaches. They will show that the growth described in Tables 5, 5A, 6 and 6A (see Appendix 1) has occurred in both the attentive public and the subgovernment. These sections will identify the contending and emerging policy networks in an industry which, for the first century of its existence was dominated by the simple control of a carrier industry and government. Whether the larger and more varied policy community will have the power and cohesion to balance the centralising trend initiated by the original community to support an alternate, and less uniform, model remains to be seen.

### 3.7 Findings from Interviews

A (purposive) sample was chosen for the interviews. The interviewees were divided into three subgroups which reflected two factors: a) representation of major players in the Newfoundland policy community, as indicated by Tables 5 through 6A; and b) urban and rural respondents. No attempt was made to be all-encompassing with respect to the variety of the community. The rural participants were chosen because they represented agencies in the public and private sectors which had an essential requirement for telecommunications in the performance of their mandates. The subgroups were:

a) telecommunications providers;
b) government departments; and
c) rural users.

The individuals interviewed were:

1. Telecommunications Providers
   a) General Manager of Emerging Business, Newfoundland Telephone Company. NTC is the principal telephone company in the Province and the main service provider of telephone facilities to all communities in the province. For additional information, see Section 3.3, above.
   b) Vice President and General Manager, Cable Atlantic. The company has been in operation since 1975, providing traditional cable television service primarily to residential customers. Currently, it provides service in St. John's and Mount Pearl as well as 10 other communities 'along the Trans Canada'. As these include many of the larger communities in this province, this company services about 60-65% of the population. Last year, the company adopted a business plan to aggressively develop interactive, high speed digital service throughout all of its areas and make them available to both residential and newly attracted business clients. The company plans to have all its customer communities serviced by 1998.
   c) Owner and CEO of Glovertown Cable.[19] Glovertown Cable is a community cable company, in business since 1973, serving only Glovertown. It has one business and 500 residential customers for traditional cable television services.

2. Government Officials (Newfoundland)
   a) Director of Information Technology, Department of Industry Trade and Technology (DITT). This interview was also attended by the Development Officer who had responsibility for telecommunications.
   b) Director of Information Technology and Telecommunications - Works, Services, and Transportation.
   c) Director of Information Technology Management - Treasury Board.

[19]Although this respondent is included under the Telecommunications Provider category, the information from this has relevance under the rural user category as well. This will be reflected if the summary comments later in this section.

3. Rural Users

a) President, West Viking Community College. Main Campus, Stephenville - i.e., Bay St. George (900 students). Other campuses in jurisdiction: Port aux Basques (100 students), Corner Brook (1000 students), St. Anthony (150 students). The campus was opened as a vocational school in 1963. It became a community college in 1977. The total distance by road between the four campuses is about 1050 kms (10-12 hrs by car).

b) Director of Corporate Development, Curtis Memorial Hospital, St. Anthony. Responsibility for all health care centres and nursing stations on the Northern Peninsula of Newfoundland as well as those in southern Labrador and the "south shore" of Quebec. The catchment population is about 30,000. Originally known as the Grenfell Mission Hospital, there has been a hospital on site since 1897, although Curtis Hospital, itself, opened in 1956. It provides a full range of in-hospital and community-based services, although certain specialty and tertiary care needs are addressed by air-transporting patients to St. John's or other major cities. There are 186 staff in the hospital itself and some 400 in total in the Grenfell Regional Health Service.

c) President and General Manager of Data Systems International (DSI), Head Office Milltown. The company is six years old, and its principal activity is as a CAD (computer assisted design) Service Bureau - i.e., the company carries out CAD conversions for clients. It also operates a three community training school in aquaculture and adult basic education (ABE) leading to aquaculture training. The company has 12 full time and 12 part time employees.

d) Owner and CEO, Glovertown Cable (see above).

**PLEASE NOTE THAT RESPONDENTS WERE ASKED TO CONTRIBUTE BECAUSE THEIR EXPERIENCE AND POSITION IN THE COMPANY OR AGENCY GAVE THEM A PERSPECTIVE AND KNOWLEDGE OF THE ENVIRONMENT THAT WOULD BE BENEFICIAL TO THE STUDY. THEIR COMMENTS WERE OFFERED IN THIS LIGHT AND SHOULD NOT BE INTERPRETED AS COMPANY OR AGENCY POLICY.**

### 3.7.1 *Description of Rural Communities*

The "rural users" (above) lived and worked in communities which are typical of the kinds of communities that one finds in the province, although numerically, the communities like Milltown are far more common.

St. Anthony (pop. 3500) and Stephenville (pop. 8000 plus 2400 in Kippens, the adjoined community) are both "largish" service centres, catering to the communities in the surrounding areas: the Great Northern Peninsula (additional pop. 25,000 and Bay St. George - additional pop. 12,000-15,000). Both have airports, although due to terrain, St. Anthony's airport is 52 kms from the community itself. Both contain the principal hospital for the region, and both are the sites of the majority of provincial government offices for the region (e.g., health, socials service, transport, fisheries, forestry, etc.) as well as other service groups (such as development association, nursing homes etc.). Both have a community college campus, with the St. Anthony campus being a satellite campus and Stephenville being the main campus of the West Viking College. Each has over 100 small businesses - crafts, tourism, fisheries, stores, etc. St. Anthony is the more remote - 450 kms (6 hrs. by road) to Corner Brook verses 90 kms (1 hr. by road) for Stephenville, and St. Anthony has a smaller population in the catchment area. Each has a rural development association and is likely to be a lead town in the developing economic zone (Govt. Nfld., 1992, 1995).

Glovertown, with a population of about 2500 is about 60 kms (3/4 hr. by car) from Gander, a service town similar to Stephenville. The town has a nursing home and health care clinic, but the closest hospital and airport are in Gander. There are a number of small businesses but not as many as in the other two communities.

Milltown is a small community (pop. 1200) on the south coast of the Island. It is one of three communities of similar size that are within a few miles of one another on that peninsula (the others being St. Alban's - pop. 1000, and Conne River - pop. 800). The principal employer in the area is Newfoundland Hydro which operates one of its

main plants in St. Alban's. The fishery was the primary source of employment prior to its closure in 1992. In addition to DSI, there are about 20 small businesses in the area - crafts, convenience stores, and some tourism based activities. There are two nursing homes, three schools, a number of provincial government offices, and nine employees of six separate provincial and federal development type agencies (HRDC, ENL, ACOA/ENI, Community Futures, and two Rural Development Associations).

Aside from the small communities in its immediate area, Milltown is fairly remote - i.e., it is situated on the Province's south coast some 180 kms from the nearest service community of Grand Falls, which has a hospital, and about 225 kms from Gander, which has an airport.

### 3.7.2 *Themes*

Rather than reporting the data from the interviews on a case by case basis, the responses have been clustered into a number of themes. These themes are:

a) the impact of competition;
b) access, service level, and cost including loss of cross subsidies;
c) impact of shift from PUB to CRTC, importance of the policy domain, and policy community; and,
d) potential for cooperation.

A summary of the comments related to each is provided below.

#### 3.7.2.1 Competition

a) In St John's and in other larger cities, such as Corner Brook, there are competitive services offered in a number of areas. Unitel competes directly with NTC in long distance provision. Cable Atlantic competes in provision of interactive digital services in St John's and will soon be offering similar capacity in the other communities it services. There are various providers of end equipment such as PBXs (in-house telephone systems), Internet access, etc. All three companies provide carrier infrastructure in and between the same 11 towns. Only NTC extends infrastructure

(microwave, digital radio or fibre) beyond these. Unitel rents carriers from NTC in regions beyond these "trans-Canada" communities. Cable Atlantic sees no business case for extending its infrastructure. See the discussion on the next theme for additional details.

b) Functionally, NTC is the is the only provider of standard telephony services in any of the communities in the study, except St. John's. Although the respondents in St Anthony and Stephenville were aware of Unitel, neither institution had been approached by that company to buy their services. This probably speaks to the degree of competition in these areas, as each of these two agencies would be a significant-sized community business. Unitel does not offer service in Milltown. Cable Atlantic, at present the only cable provider planning to provide interactive digital service to its customers, does not intend to offer service in any of the rural communities represented in the study.[20] There were no competitors for provision of end equipment or local services known to the "rural users". There are no cellular offerings from either of the two potential providers in either of Milltown or St. Anthony. The hospital in St Anthony makes extensive use of mobile radio for air and ground ambulances. It collaborates with the fire departments on use of towers.[21]

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[20]The only other large cable company in the province is a member of the Regional Cable group. It maintains some 300 head-ends, many of which are unmanned, to service about 30-35% percent of the population, compared to Cable Atlantic's 11 to service 60% There are a handful of community cable companies that make up the remainder. Given geographic and financial constraints, no other companies plan to offer enhanced services in the foreseeable future.

[21] CANCOM, through a local supplier, in December 1995 began offering commercial Internet service using a V-Sat based service in 8 towns. All of these towns are currently serviced by Cable Atlantic or have digital service access through NTC. They do not have a plan at present, despite the obvious advantage of a satellite type offering in remote communities, to offer commercial service in them. They will install and maintain, for a price, customer terminals which can then make use of the main Cancom hub. NL-Net, the provincial region of Ca-Net which was operated by Memorial University also follow a path very similar to the commercial providers. Its twenty provincial routers are located in the province's largest communities, again servicing about 65% of the population. NOTE: NL-Net was purchased by a consortium of Cable Atlantic, Unitel and Hook-up Communications in the Summer of 1996. The same locations were maintained.

One should interpret the information in a) and b) in light of current national telecommunications policy which is predicated on the fact that competition is meant to provide better, more modern and more cost effective services. However in rural communities in Newfoundland, as is the case in rural communities discussed in the literature, there is little, if any, competition to provide services and no competition to provide the infrastructure essential to give access to the information highway.

Despite the lack of competition in rural communities, all respondents felt that competition had positive benefits for Newfoundland in general, with the impact being felt sooner and more extensively in urban regions. One government official pointed out that both rural and urban communities benefitted from decreases in long distance rates and other universal services. Both "telecommunications providers" and "government officials" felt that the competitive entry was pushing the development of digital services, and to a certain extent, Newfoundland was benefitting directly from the demand for these types of services in larger cities elsewhere in Canada. Therefore, NTC and other local companies which were members of alliances were being indirectly led by this demand. Similarly, two "rural users" reported that every time one telephone company offered a new package of services, the other was quick to follow suit or offer something similar. In addition, one rural user noted that agencies could take advantage of competitive services elsewhere by asking for quotes on provision and installation of equipment from areas of the province where competition existed, even though none might be available locally. This could result in external pressure or leverage with local suppliers. Note this statement refers only to equipment that might be in a building , for example a PBX or in building cabling,or minimal services offerings such as "call display" not to the carrier infrastructure which is essential to adequate access to the information highway.

Despite the fact that rural communities currently enjoy the cost reductions in services that can be accessed on reasonable quality infrastructure, the representatives from NTC and DITT both cautioned that hitherto, rural areas have been able to "ride" on

established plant facilities. As maintenance and replacement become issues, areas with less potential for amortising costs, over the short period of time that can be allowed in this increasingly competitive environment, are likely to be further disadvantaged, as a business case will not be able to made to replace, repair, or upgrade facilities in order to continue the current level of service or add new the ones likely to evolve.

### 3.7.2.2 Access, Service Level, Cost and Cross Subsidy

All rural users interviewed felt that the cost of telecommunications, when viewed as a portion of their budget, was high. The amounts reported ranged from 35-50% of total budget for the user in Milltown to "from $60,000 to $100,000" (exclusive of related salaries) in the others. All interviewees were located in areas previously serviced by TNT, and none noticed an improvement in the technical quality of service when NTC bought TNT. The user in Milltown, however, noticed a decrease in level and promptness of customer service, which he found interesting since the same people performed the duties. Under TNT, he felt, service was faster and more personal; now he found one was put on a waiting list. The other two rural users interviewed, by and large, were happy with the customer service being received.

The rural user in the small, remote town of Milltown found the technical quality of the telephone totally inadequate for the company's need. There was frequent cross talk on the lines during conversations. The closest "Datapac" point of presence was in Grand Falls, and the access to it was very limited - i.e., an employee would have to sit for extended periods pressing redial buttons to obtain access. Once access was achieved the data speed was only 2400 baud, which resulted in high transmission costs. In addition, the quality of the lines, presumably between Milltown and Grand Falls, often resulted in loss of vital data from the files. Over time, he found it more cost effective, reliable, and timely to courier floppy disks to Gander and fly them to the client. When asked about the planned availability of digital service(s) in the area, and if it appeared to be being delayed, this interviewee noted that when he started his business in Milltown six years ago, he had been told that such services would be available in

three years, and when he recently again, enquired he was told they might be available in three years. Ultimately, although the head office of the company has remained in Milltown, the company opened an office in St. John's. One reason was the telecommunications problem. The Milltown experience is an example of a remote rural community where infrastructure is already inadequate with resulting poor quality services due, in part, to the fact that all the major infrastructure providers are concentrating their effort in easily accessible high population communities.

The other rural users in the service communities did not have such dramatic stories to tell. By and large, they found the technical quality of their service adequate for the services that were available; each had access to entry level services like conference calling, fax, e-mail; one had "Call Display". However neither was attempting to transmit sophisticated data files. Both felt that they would not be interested in assigning more of their budget to these types of services (e.g., one noted that e-mail was probably only used constructively for 50% of the time and services such as Call Display and Message Manager did not functionally offer anything extra in most settings, although now everybody felt they had to have them). However, both felt that their agencies would benefit from, and use, services that were dependent on higher speed digital access, such as video conferencing for teaching and meetings (to reduce travel costs) and, in the case of St. Anthony, an enhanced level of telemedicine services, both regionally and with the tertiary care hospitals in the larger centres. Again, when asked about planned availability of these digital services, although Stephenville has access to some digital services, neither the other communities in the Cape St. George area, nor the other campuses in their college (except Corner Brook) have access to digital facilities. It was the rural user's impression that planned access in some of these towns had been delayed. St Anthony reported that they expected to have these services in about four year's time. Again one sees that installation of the digital infrastructure which would allow high-end services, such as those required to support video-conferencing for telemedicine applications or transmission of imaged based computer files, has been delayed in these regions. Such services are easily

accessible in cities such as St. John's and Corner Brook, and other central towns like Clarenville and Gander.

For a variety of reasons, the rural users felt that without further investigation, they could not accurately state whether the downward trend in long distance and the accompanying increase in local services has negatively or positively impacted their operations. They did note, however, that the costs of their local services, lines, etc. had increased. The rural user in Stephenville (where 60-65% of calls were made in the Bay St George area) felt the overall costs might now be greater. The Telephone Provider indicated that the real impact of the loss of this cross-subsidy has not yet be being felt by the customers. Some cross-subsidy still exists and is paid for by the various companies in the marketplace. Also, NTC has able to down-size due to technical innovations and internal restructuring, with the saving being passed on to the customer to lessen the impact. Both the cross-subsidy and the company's ability to "find internal fixes" are nearing an end. The literature revealed that the impact of this increased cost of local services will be felt most severely by small businesses as they conduct most of their activities within, or close to, their community. They will not, on the other hand, benefit substantially from reduced costs of long distance as they do not use it extensively. Most businesses in rural communities fall in this category.

The responses of the rural users were supported by those of the "telecommunications providers". The telecommunications providers indicated that extension of enhanced services to rural and, particularly, remote communities in the new competitive environment seemed unlikely. The principal cable company of the province did not see a business case for expanding its reach beyond the communities that the company currently served. The respondent felt it was more likely that the company would enlarge the envelope of offerings to both residential and business clients in communities it currently served and possibly look for locations outside the province in which to market "content" type packages. Similarly, the "telephone company provider" felt that as the environment became more competitive in larger communities,

the company would have to concentrate its efforts. If it lost significant market share in larger communities the company would not remain viable to offer any services anywhere. Scenarios such as different levels of service in different- sized and -situated communities might be a consideration over time. For instance, although the "telephone company provider", the only company providing infrastructure beyond a limited number of large towns, did not see a differential in long distance charges between urban and rural settings, she proposed the following scenario, assuming no subsidy or other policy change: cities might expect lower costs of local services, more features and faster less expensive maintenance; "urban fringe" communities might expect prices to be a little higher with a somewhat reduced level of services; and remote communities might have less product choice, and lower level of support, and, possibly, higher service charges. (Note again: This is an opinion of the respondent not planned company policy.)

The "community cable" owner added complementary information on the matter of cost from the perspective of the broadcast environment which quite possibly emphasizes the dilemma of provision of service to rural areas. Cancom is the monopoly provider of satellite-delivered television programming in Canada. The Glovertown Cable Company pays $0.84 per signal per subscriber compared to approximately $0.05 per subscriber for the same signal from the same provider for the principal cable provider in the province, Cable Atlantic. This is a result of various factors, such as:

a) Cancom charges a larger fee to companies that are situated in satellite-reliant areas (Cable Atlantic can either buy from Cancom or bring the service in directly by microwave facilities).
b) There is a price differential between companies that have three channels or less and those that have more than three, stemming from a decision made some years ago by the CRTC. At the time Glovertown had two channels while Cable Atlantic was offering four.
c) Glovertown has a smaller number of subscribers over which to spread the "downlink" charges.

A related issue is that of the costing structure for pole attachment - permitting one company to attach its wire to poles erected by another. By and large, in Newfoundland only NTC and Newfoundland Hydro erect poles. All other companies use these poles and pay a fee for doing so. The charging mechanism in Newfoundland, the Glovertown owner held, results in a higher rate than in other provinces such as, Nova Scotia. Additionally, with regard to the rural/urban differential, Glovertown Cable must pay access to many poles for few subscribers compared to a relatively few poles for many subscribers for the urban stations. The owner suggested that a more equitable approach would be for the CRTC to use a formula that was based on the number of subscribers rather than the number of poles. This owner, for these and other reasons, does not plan to offer "enhanced" broadband services.

These factors, as seen from the perspective of the largest and one of the smallest cable providers in Newfoundland, highlight some of the very reasons why it is difficult to make a business case for provision of newer services to rural areas, even those within an hour's drive of what Newfoundland considers to be a substantial sized community. As one provider said, in a market-driven environment companies are driven by two things - customers and competition; small rural communities have neither.

The issues of access and cost were not discussed as directly with the government officials as they did not have information on current rural costs nor were they in a position to make projections. However each of the respondents recognised the need to find an equitable solution to the provision of public services, of which telecommunications is only one, to both rural and urban environments. One noted that many people made life choices which included the location of residence, and while no one was suggesting that the complete urbanization of society was needed or desirable, a recognition of the difference between what could be reasonably expected by, and provided to, the 150,000 people in St. John's is quite different from that for the 150 people in Paradise River. There appeared to be a consensus that since federal

communications policy has only in the last ten years been moving actively toward increasing competition and decreasing regulation (in this and other areas), it is unlikely to change course now.

#### 3.7.2.3 Impact of Change from PUB to CRTC/Importance of Policy Domain/Policy Community

All of the policy groups consulted felt that, by and large, the shift from the PUB to the CRTC had been a positive one. The province benefitted from decisions that were informed by the skilled technical staff of the CRTC - an advantage that was not available through the local PUB prior to 1989. There appeared to be consensus that prior to the transfer of telecommunications in 1989, the decisions related to telecommunications were largely technical and related to infrastructure, itself; there was not the breadth of policy issues related to this area that there is currently, due in part to the monopoly situation. This opinion is certainly supported by records of the PUB hearings reviewed. (See Footnote 10.) Only one or two hearings could be construed as dealing with any issues other than routine setting of rates, profit, locations and sizes of towers etc. One hearing dealt with revising the rate of return on the base rate by NTC (PUB Hearing 1980, PU-19), during which there was representation on the issues of rural access and quality of service by a variety of individuals and groups including the MHA representing coastal Labrador. A second dealt with increases in local costs/terminal attachment (PUB Hearing 1986 PU-12) which potentially could have impacted on health and education facilities. Again there was representation from the specifically affected groups at the hearing. There was no broad representation of groups about an issue or issues of provincial concern in any of the PUB hearings. The provincial policy community prior to the 1990s seemed to be quite small and close-knit (See Table 6 & 6A). The same groups appeared repeatedly at hearings: the PUB, the Telephone Company, the Federation of Municipalities and later the consumer representative on the PUB. The first three were routinely represented by legal counsel.

The interviews with the government officials revealed that by 1990, the government recognised the dramatic effect that telecommunications could have on business and economic development given convergence and the global change in the industrial base. A decision was taken to transfer responsibility from Municipal Affairs, whose mandate related to physical infrastructure, to Industry, Trade and Technology (restructured from the Department of Development), whose mandate included industrial and economic development (Govt. Nfld., 1992, p. 46. Article 58). Currently, the lead department for policy formulation in the domain is DITT. The government's ongoing commitment to the importance of the policy area was demonstrated when in a recent (December, 1995) considerable down-sizing which effected every department, the division of DITT, which has responsibility for communications and information technology, was untouched. DITT officials consult with Works, Services, and Transportation (WST), Treasury Board, and the other line departments as appropriate during the preparation of policy positions.

There also seemed to be consensus among the government officials that, given the globalization of economies, telecommunications policy is best addressed at a national rather than provincial level. The DITT officials felt they had adequate means for direct input to national policy when needed including the following:

a) The Department can respond to Public Notices given by the CRTC either by way of letters of support for provincial groups making representation at meetings, or by adopting and presenting a position from the Department, itself.
b) When the Department disagrees with a CRTC decision, it can intervene directly with the CRTC through the Ministers of DITT and then Industry Canada (IC). (This was not seen as the most desired route because it is not perceived to be "the proper channel".)
c) The CRTC sometimes decides that it does not want to make a decision without consulting with the provinces and therefore contacts the province directly.
d) DITT has made a conscious effort to improve lines of communications with the federal department, IC. For instance, a DITT official spent three weeks in IC

establishing informal contact, which has served the Department in good stead with respect to being able to prepare timely position statements for the minister.

On the matter of potential members of the policy community, the rural users interviewed, indicated that, for the most part, individuals, local businesses and most local groups in smaller communities are more concerned with local issues than with broader ones, such as the impact of availability of telecommunications on their community. If they do become involved in such an issue - e.g., the recent broadcast and telecommunications hearings, it is because one or two key people organise the participation. Anecdotally, the owner of Glovertown Cable held that he quite literally wrote letters for businesses and agencies to sign and submit to the 1995 CRTC Information Highway Hearing (confirmed by one of the government officials). Rural users felt that there probably was not sufficient cohesion in communities around specific issues and that if new policy initiatives were to be undertaken, they would likely need to be led by public sector groups, which would have a more global perspective, either within government, like rural development offices, arms-length agencies, such as the Enterprise Network (ENI), or provincial educational networks like STEM-Net.

This statement was supported by telecommunications providers, who felt that they infrequently, if ever, received a community request for some set of integrated services, but rather individual approaches requesting services, some of which could be addressed if presented as a community need and commitment. It might be noted that while in an increasingly competitive environment this is a significant issue, historically and currently, the approach to tariffs and the practice of dealing with individual customers is both a cause and effect of the problem.

#### 3.7.2.4 Cooperation

There was consensus among all respondents that there was a difference between current and expected levels of service between urban and rural settings, and that the

more remote the region is, the greater is the difference. All also agreed that, given the current trend toward deregulation and competition, the best service to rural communities could be given if some form of cooperation and collaboration existed both at the community level and among the service providers.

A number of collaborative initiatives are already beginning in other related areas. A four-company consortium, which includes NTC and Cable Atlantic, has formed to provide a software and network solution to the telecommunications and information technology needs of the new regional hospital boards. Operation ONLINE (NGL, 1994) has begun a series of planning meetings with the directors of the various public interest networks (STEM-Net, NL-Net, Telemedicine/TETRA, ENI, and the new Library network), each of which has a province-wide presence to begin the process of collaboration with the aim of achieving more coherent planning. It is hoped that their combined presence will form the nucleus of collaborative points of presence in the many rural communities which they serve.

Also, the provincial government has made considerable headway in implementing an system of 19 economic zones (Govt. Nfld., 1995). The intent of the zones, as outlined by the provincial strategic plan, is to provide for better coordination and integration of development activities, to involve the people of each zone in planning initiatives that will benefit the zone, to allow the government to strengthen the key towns, and to promote !opportunities that would benefit the whole zone (Govt. Nfld., 1992. p. 16). At the time of writing, interim boards have been appointed and public consultations within the zones are under-way on the development plans. Opportunities for cooperation and collaboration of levels of service could be aligned with this significant policy undertaking by the government.

#### 3.7.2.5 Other Comments of Interviewees

Following are a few other comments, made by respondents, that were worthy of note but did not fit in either of the four general categories.

The government officials mentioned other instruments such as tax incentives as potential approaches to providing services to rural areas.

One government official felt that incentive regulation would only work if there were a number of providers. One of the telecommunications providers, however, felt that certain types of incentive regulation could improve the business case for provision of services to rural areas.

### 3.8 SUMMARY

The following are key points from this chapter:

a) An increased amount of competition has been allowed and indeed encouraged by governments in this area.
b) Regional regulatory bodies have all but disappeared which has two implications. Firstly, there is less government presence overall in the policy community, and secondly, there is less direct means of policy formulation to suit provincial needs.
c) The policy communities in both Canada and Newfoundland have increased substantially both in size and variety of players with accompanying new agendas.

From the interviews the following points are of particular importance:

a) Except in a handful of large, central communities in Newfoundland there is no competition to provide telecommunications infrastructure. Any benefits in rural areas are a result of the competition to provide services in urban areas and indications are that these will degenerate as existing infrastructure ages and can no longer support them.
b) The one provider of infrastructure outside of these areas indicated that given her company's need to compete in major centres, residents and businesses in other can expect increased costs and decreased levels of service as existing

infrastructure becomes obsolete. Other potential providers of infrastructure can see no business case for expanding into these more rural areas.

c) Remote towns like Milltown, and even less remote towns such as Glovertown already show the effects of poor and more costly infrastructure.

d) Although individual groups in rural communities are sometimes interested in larger issues any changes would probably be lead from agencies with province-wide mandates.

e) There was consensus among those interviewed that cooperation among players will be important to achieve better service to rural areas of the province. A number of existing collaborative ventures among major stakeholders in the area already exist. This situation reflects that cited in the government studies and other literature, that rural communities will be disadvantaged by lack of reasonable quality and priced infrastructure.

f) Incentives through taxation or through incentive regulation might be useful policy instruments to achieve policy change.

# CHAPTER 4: ALTERNATE POLICY OPTIONS

## 4.1 INTRODUCTION

The telecommunications policy area, as indicated in Chapter 1, is of particular importance currently, due to its influence on both economic and social development. In the current changing environment, the impacts are likely to be felt more keenly in rural environments.

This chapter: a) briefly revisits a number of the related social and economic issues; b) highlights a number of specific policy instruments and regulatory approaches that governments, including a number of Canadian provinces, have employed to decrease the developing rural/urban dichotomy, and c) describes in greater detail three policy/regulatory approaches that have been implemented with varying degrees of success in other jurisdictions, pointing out the critical link between telecommunications and economic development in each.

### 4.1.1 *Economic and Social Impacts of Telecommunications Policy*

On the optimistic side, the universal availability of telecommunications networks is seen as a support to the provision of a variety of valuable social activities. New media have the potential to increase access to social, educational, and health services. These networks have the capacity to render time and distance irrelevant, thereby enhancing the viability of more remote communities (Communications Canada, 1992a; Adv.Com.Ontario, 1992; DOC, 1971).

The more pessimistic view contends that the new telecommunications have eroded our individual and territorial privacy. As early as 1987, there were 1500 Canadian government data banks alone, with associated implications for loss of privacy. From the territorial or national perspective, the acceleration in cross-border information flow has increased concern about informational sovereignty and cultural integrity (Paquet,

1987). Many hold that information technologies used by businesses and government require a more skilled work force and considerable capital to implement, and that, far from providing equal access to all areas of the country, these technologies will only serve to reconfirm the domination of those that hold significant power (Babe, 1990; DOC, 1971; Parker & Hudson, 1995, chap. 3).

As was the case with the social issues raised above, there are conflicting opinions about the economic impacts of information technologies and their implementation in a competitive or unregulated environment, most particularly when viewed from the perspective of peripheral regions. Some suggest that these new technologies will decrease drudgery in the workplace and that opportunities for telecommuting will open more avenues to women and groups traditionally excluded from the workforce. Others, however, hold that although overall production efficiencies are increasing, the inevitable labour dislocation will be worse in the lower income and more vulnerable groups. For instance, when CP Rail and CP Air computerised their scheduling system the net loss of jobs was 15%; significantly 70%-80% of those jobs had been occupied by women (Dobell, 1987, p. 78). The same author argues that although technology is neutral with respect to decisions on location of offices, other factors, such as work force characteristics, the overall industrial structure, and the diffusion of complementary technologies, will, in all likelihood, mitigate against location of significant industrial activity in remote areas of the country. The existing tendencies to find economies by centralising employees will likely continue the trend toward centralization of economic activity and, with this, the reduction of local enterprises, thus increasing the existing regional disparities in the country. Big businesses have traditionally concentrated their management and decision-making positions in large urban centres, assigning supply-and-purchase types of positions to smaller regional offices, thus decreasing opportunities for people with higher education to obtain regional employment. This contributes to "brain drain" from already vulnerable areas. Interventionist government policies will be required to counteract these tendencies (Globerman & Carter, 1988; Lamarche, 1987, chap. 7; Dobell, 1987, p. 78).

There is also the concern that new media are themselves contributing to the deskilling of the work force and encouraging the disappearance of the middle class by producing a demand for a few highly skilled occupations matched with a large population of relatively unskilled occupations (e.g., far fewer programmers compared to data entry people are required by industry) (Dobell, 1987).

Over the past 40 years, the tertiary or knowledge work industries (e.g., those dealing with services, consulting, and adminstration, have grown faster than either the resource or manufacturing sectors (Communications Canada, 1987). To participate in this growth it is critical to have access to the electronic/information highway (Manley, 1994; Prosperity Initiative, 1991, 1993; Govt. Nfld., 1991; NGL, 1994; N. B. Task Force, 1993). As indicated in Chapter 1, although deregulation and increased competition are viewed positively from the perspective of the overall economy, the manner and pace of diffusion of telecommunications infrastructure, particularly in an unregulated environment, can create dichotomies between urban and rural regions. Similarly, small businesses, which are the norm in rural areas, are disadvantaged in environments such as have existed in Canada and the United States in the last decade (Hillman, 1993: ECC, 1990; Mosco, 1990; U.S. Congress, 1991; Lesser & Hall, 1987; Parker & Hudson, 1992). These situations are fuelled by two issues. First, due to low populations rural areas cannot create the demand required to encourage competitive companies to modernize infrastructure. Second, the regulatory environment that once allowed cross-subsidies and rate averaging, thereby supporting universality and equal access, is currently being radically altered. In practice, except as part of publicly regulated programmes, telecommunications companies, like other businesses, are bound to concentrate on the largest and most profitable markets (Hillman, 1993, p. 7; Parker & Hudson, 1992; U.S. Congress, 1992).

Studies also raise the following economic issues that are of concern to more rural provinces and smaller businesses who are attempting to secure a position in this new industrial environment:

a) The information industries require on average a more educated workforce, and generally speaking, the urban workforce has higher education levels than does its rural counterpart (Adv.Com.Ontario, 1992; McPhail & McPhail, 1990; U.S. Congress, 1991).

b) The cost of the implementation of networks, in forms of both labour and capital, increased significantly throughout the 1980s (Ministry of Supply and Services, 1984). Since greater distances exist between small communities in rural areas the cost problem is heightened there.

c) Despite promises that competition would decrease costs, in the United States, costs of telephone services have risen as a portion of disposable income for lower income groups and millions of American families now have to pass a means test in order to be able to obtain a telephone and basic service (Mosco, 1990, p. 19). Further, a government agency, The Rural Electrification Agency, is used to subsidise telecommunications costs for rural areas (U.S. Congress, 1991, pp. 25-26).

This information reinforces the argument that a policy of deregulation and increased competition do not work to the advantage of rural regions or economically disadvantaged groups.

## 4.2 Alternate Policy Options

### 4.2.1 *General*

Given the complexity of the social and economic implications of the policy decisions in this area, it is not surprising that there are a variety of approaches to policy implementation and telecommunications regulation as various levels of government in Canada and elsewhere attempt to find an appropriate balance of factors in their regions. There are examples of successful proactive government approaches in Germany and France. In France, for instance, in the 1980's the government-owned telephone company began publishing its directory in electronic format only, a move which redefined "universal service " in that country (OECD, 1988). The European Economic Community promoted the deployment of advanced networking technologies

in small-and-medium sized businesses in the member countries by funding infrastructure and also promoting supply and demand of ISDN-based (Integrated Switched Digital Network) services in areas outside the major urban centres. This initiative was known as the STAR Project (ECC, 1990, chap. 2, p. 6; Gillespie & Hepworth, 1987, pp. 115-123). Initiatives in England, Ireland, Finland and the Netherlands are covered in more detail in Section 4.2.2 which discusses options for consideration in the Newfoundland setting.

In the United States, the rulings of the federal regulatory body, the Federal Communications Commission (FCC), are often at odds with the economic development initiatives of the individual states (Twenhafel et al., 1989, pp. 2-9). Unlike Canada, each state has its own regulator in addition to the federal one, the FCC. The divestiture of Bell and the shift toward deregulated service is seen by some as having eroded the traditional systems of rate averaging which are important to rural economic development (U.S. Congress, 1991, p. 7-8; Parker & Hudson, 1995, chap. 1). Regulations designed solely to promote economic efficiency may threaten universal service and undermine the needs of small users which are quite different from those of larger ones. Thus a number of U. S. states have adopted differing but interventionist policy implementation paths which speak to the social and economic needs of that state. Many of the states have large rural populations and a varying deployment of "modern" telecommunications infrastructure. In each case, the link between economic development and telecommunications is recognised, in defining policy, as is the specific role for government as a model user of technologies (Briesemeister & Horrigan, 1989, pp. 271-283).

Two cases serve to demonstrate that despite deregulation at the national level there are a variety of policy approaches that could be implemented at the regional level to maximize benefits to a wider group of citizens. In the state of Washington, for instance, the government has adopted preservation of universal service as its primary goal. It has chosen a policy of price deregulation in competitive markets while

maintaining rate of return regulations for services provided to monopoly customers. It has established a separate state agency to promote more efficient use of telecommunications by the government itself, as well as supporting development of rural infrastructure by establishing networks for the delivery of social programmes such as distance education (Strayer & Twenhafel, 1989, pp. 241-265; Parker & Hudson, 1995, chap.5).

A second state, Nebraska, has a large scattered population and a population growth that is half the United States average. Its economy has traditionally revolved around agriculture. In recent years, however, Nebraska has attracted a number of large telecommunications users particularly telemarketing and central reservations firms. This state routinely uses a "social contract" model (Parker & Hudson, 1995, p. 69) to achieve consensus. In this instance all interested parties agreed to deregulate local basic service rates and to allow the various telephone companies to maintain their local exchange areas. The legislation required only that the various companies provide subscribers with a 60-day notice of rate increases thereby eliminating lengthy hearings. However, the state Public Utilities Board would automatically review a proposed rate change if it exceeded guidelines outlined in the Act, and it would also conduct a review if requested to do so by the rate payers (Harper & Younger, 1989, pp. 83-110).

In Canada, there are historic and recent examples of telecommunications policy approaches which focus on strengthening particular regions, and which differ from policies being followed currently by the CRTC and the Canadian government.

The provincial governments of the Prairie provinces have consistently argued that the Bell System did not propose services which responded to the needs of their largely rural populations. As a result, three government-owned companies developed in these provinces, although the current provincial government is endeavouring to privatize Manitoba Telephone System. At present, SaskTel and Manitoba Telephone System remain crown corporations. Only recently (1989) was the Alberta telephone company

(AGT) privatised to become Telus Communications. Although the circumstances and approaches varied somewhat in the three provinces, historically the companies developed in similar circumstances. In the early part of the century, population settlements were small and scattered; this was therefore not a region in which a private company would be likely to expand services rapidly. The governments established telephone companies that were in direct competition to Bell to support the businesses and private citizens of the provinces. Even faced with the challenge of the large rural population base, and despite concerns about government inefficiencies, the companies remain competitive and provide competitive rates (Denny, 1986, pp. 31-55). Indeed they have heralded such successes as SaskTel's, being the first telephone company in North America to construct a large scale fibre optic network (Denny, 1986, p. 51).

The Ontario government under Premier Robert Ray also formulated policy in 1991, to ensure that the benefits of the telecommunications industry reached all of the citizens of the province, to enable economic growth and enhance quality of life throughout all regions. To attain these economic and social goals it implemented strategies to respond to the education and training needs of the information sector, stimulate the growth of information highways, and accelerate the development of a research and education network for the province. To ensure equity access, particularly in rural regions, it supported community and rural networks through such means as providing incentive funding to municipal and community organizations prepared to establish telecommunications-based industries. Further, it encouraged departments to use electronic network applications (such as e-mail) in their day to day business and delivery of services. The intent was to make enhanced networks more cost effective in areas of low population by the volume of traffic generated by government requirements (Adv.Com.Ontario, 1992, pp. 30-33 & 44-51).

One can see from the above evidence that a number of options exist to counter-balance the potential negative effects of deregulation and competition. The following section provides greater detail on three approaches employed in other jurisdictions to address

the needs of rural areas. These options will be discussed in Chapter 5, with a view to their possible implementation in Newfoundland.

### 4.2.2 *Options for Consideration*

#### 4.2.2.1 Aggregated Demand / Rural Area Networks: Redefining the Customer

> [The] divestiture of the Bell System and the shift toward deregulated services, together with the emergence of large private networks, are undermining the traditional system of rate averaging and subsidies for local telephone service. These developments have occurred at a time when rural economies are themselves becoming more fragile... (U.S. Congress, 1991, p. 8).

Rural America is quite vulnerable to the potential negative impact of the change in the industrial base. Contributing factors include the high cost of infrastructure due to distances between communities, relatively small businesses and communities that have difficulty in finding capital to invest in new telecommunications technologies, and on average, a lower education level in a workforce which has traditionally been employed in resource based industries. These are also common concerns in the Canadian environment. As Mosco reported (see Section 4.1.1), to maintain a relatively high penetration rate of telephone services, 46 states operate a range of programmes - e.g., "Link -up America" and "Lifeline", which subsidise installations, monthly charges, or both. These are accompanied by all the trappings of a welfare programme means tests, administrative bureaucracy, and policing.

The U.S. Congress (1992) Report maintained that new ways had to be devised to design and deliver communications services to rural communities and that policies should be implemented to create more favourable conditions for their deployment and use, if these regions are to survive. It recommended a more positive approach than the welfare system reported by Mosco, that of setting policy which would permit formulation Rural Area Networks (RANs). Conceptually these networks would function like LANs or WANs which have allowed businesses to create their own customised networks. A RAN would be defined along the geographic boundaries of a

community or region. It would link as many users within a community as possible - i.e., businesses, educational and health institutions, and local government offices. This approach would allow pooling of diverse users to give economies of scale, thus creating leverage to induce communications providers to be more responsive, foster cooperation within the community, and, promote sharing of human resources to reduce the limitation of technical expertise in any one member of the cooperative group.

A variety of technologies could be utilised to provide such services. For example, use of a combination of digital radio combined with optical fibre would mean that fibre would only have to run to the radio carrier station. Each user could have a transceiver that provides standard telephony service. This could provide service at approximately $3000 per subscriber compared the approximately $10,000 per subscriber to provide access via copper. Similarly, use of advanced satellites might be considered, as their signals cover wide areas (U.S. Congress, 1991, p. 9). This approach requires a close link between telecommunications and economic stakeholders and a holistic approach to economic development that includes the concept of comprehensive community development (U.S. Congress, 1991, pp. 2-15).

A variation on this approach of "aggregating demand", used in Iowa, Minnesota, and Kansas, allows small telephone companies in an area to aggregate their demand for services by pooling traffic to provide a viable market for offering enhanced services. In Iowa, a number of small, independent companies formed a consortium to give equal access to long distance to all of their subscribers (150,000). Twenty-six (26) companies in South Dakota have chosen a central point from which to offer long distance carriers access to their rural exchanges which has allowed them to offer cheaper rates than if each had operated separately. Similar types of aggregation permitted 90 independent telephone companies in Minnesota to use fibre and digital technologies to provide enhanced services not previously available in rural areas. A Kansas consortium of 29 companies allowed the introduction of cellular services which would not have been feasible had each company attempted it on an individual basis

(Parker & Hudson, 1995, pp. 78-79). Although telephone providers are not so numerous in Canadian provinces, the concept of industry collaboration combined with that which government might be able to do through regulation and/or economic incentives, to promote some cross-sector industry cooperation, might be worth exploring. Possible collaboration was raised by a number of respondents to the interview questionnaire and is specifically endorsed in the report of the hearing as can be seen in the following CRTC comment.

> Competition alone will not deliver the benefits of the information highway to every region in Canada. Canadians want assurances that they will have affordable access to the information highway. This will require retaining some subsidies and the adoption of co-operative approaches by governments and distributors in building communications infrastructure and developing public access to essential communications services, particularly in remote and under-served areas.....
>
> Competing distribution systems should permit open access to their facilities. Government should actively promote the development of open/interoperable standards on the information highway but should not mandate such standards at this time (CRTC, 1995a, p. 9 of 45)

And later in the same document, in its discussion of public places in a digital world it states.

> Affordable public access to the information highway is a key concern. Many parties used the term "public lane" to capture this concept, and there were different ideas of what it should include. Parties project that public access on the information highway will range from that provided by public broadcasting and the cable community channel, to dial-up government and health care information, educational services, community networks, e-mail facilities, libraries and information banks, and services designed for use by aboriginal peoples.
>
> As competition increases, traditional approaches to achieving social goals must be rethought if Canada's information highway is to be accessible and affordable. It is unlikely that market forces, by themselves, will ensure that the benefits of the information highway will roll evenly out to all regions of Canada or satisfy all of the public interest demands made on it. This suggests that the policy objective of universal access at affordable prices will not be realized without some support. The vision of the Canadian information

> highway captured in the term "public lane" is multi-faceted, and the Commission believes that the goal of universal access to that highway will be realized through various means, including market forces, subsidies and cooperation....
>
> As new parties apply for licenses to operate broadcasting distribution undertakings, the Commission will look at the applicants for such contributions. In a competitive world, however, distribution undertakings will use differing technologies. For this reason, the Commission considers that it would be unrealistic to mandate a particular form of contribution. Instead, parties wishing to operate new broadcasting distribution undertakings should come forward with innovative proposals for providing community expression, perhaps through incorporation of interactive community dialogue and vehicles for sharing information. Such proposals would complement the contribution made by existing cable operators through their community channels.
> (CRTC, 1995a, pp. 34 & 35 of 45)

#### 4.2.2.2. Incentive Regulation: Change in Regulatory Approach

The current regulatory approach in Canada for telephony services is based on rate of return - i.e., the provider is allowed to cover all costs and make a predetermined amount of profit, e.g., 12%. The provider sets rates within this structure. A common alternative to this approach is "incentive regulation". This approach gives carriers some flexibility in pricing for fully or partially competitive services. The most attractive feature of incentive regulation, is its ability to encourage carriers to reduce costs by permitting higher profits, provided such profits do not result in higher prices. In a typical scenario, carriers are allowed to keep a portion of the profits above the prior rate of return allowance, while the remainder is returned to customers in the form of lower prices (Parker & Hudson, 1995, p. 70). The simplest approach to this type of regulation is the "price cap," whereby carriers are expected to achieve certain percentage of productivity gains each year. Companies are allowed to increase prices only if the rate of inflation is greater than the expected productivity gains. In exchange for the increased productivity, the companies can keep the extra profit that they have achieved without raising the prices. A concern about this type of regulation is its potential to decrease the quality of service. Costs could be reduced by

decreasing quality therefore leading to greater profit even though the price remains the same. Even if "benchmarks" for quality are set by the regulator, there are concerns that rural and poorer areas might be adversely affected and not noticed because their statistics might not show up in provincial or state averages.

A form of incentive regulation is used in Britain and in a number of U.S. states. Often, it is driven purely financial reasons, but some states have a more targeted rationale for implementation. In Michigan, for example, this approach is tied to the companies' agreements to upgrade infrastructure beyond what would have been in the companies upgrade plans. In Tennessee, it is tied to a 10-year plan that will eventually deploy ISDN, fibre trunks and switched broadband throughout the State. In Texas, it is tied to implementation of digital switches and Extended Area Services in some regions (Parker & Hudson, 1995, p. 71). The CRTC is considering the implications of implementing this approach to regulation in Canada. The commission is also beginning consultations on the quality guidelines for service delivery which can be used if this change in regulatory approach is adopted[22].

Parker and Hudson also suggest a second form of incentive regulation which, as yet, is untried but which they feel would reduce the short-comings of the price cap approach. They compare this to "management by objectives". In this model carriers are expected to achieve goals set by the government in exchange for higher profit and more flexibility in investments and technology choices. The government, for instance, could set positive infrastructure goals or service levels with quality standards and benchmarks. When goals are met the company can keep its higher profits. This reduces the problem of achieving higher profits by cutting corners to lower costs (Parker & Hudson, 1995, pp. 71-72).

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[22] See CRTC Telecom Public Notices:
**96-8**: Price Cap Regulation and Related Issues. http://www.crtc.gc.ca.../notice/files/P968_0.TXT
**1994-50**: Review of the Quality of Service Indicators. http://www.crtc.gc.ca..../notice/files/P9450.TXT: The 1994 review is still ongoing, according to the information on the WWW page.

#### 4.2.2.3 Telework - Proactive Complementary Policy

There are numerous examples in our everyday lives of how the ready availability of modern telecommunications facilities is changing the way we live: banking no longer requires a human teller; publications can be obtained without visiting a library or book store; courses can be taken without attending a classroom; shopping can be done from the comfort of our living rooms; and increasingly, clinical consultation can occur, if not from a home, then between a community hospital or clinic and a tertiary-care institution. The newest activity in the domain of a "telelifestyle" (Hillman, 1993) is the concept of "telework". There are, of course, social and psychological questions to be investigated about these opportunities, but for the purposes of this study, it is evident that access to these technology tools enables a new approach to living, learning, and working. The capacity to participate fully in any of these network-enabled opportunities depends not only on the availability of networks per sq, but also on development and telecommunications policies that encourage dissemination of such networks at reasonable cost as well as, complementary transportation, education, health, safety, and insurance regulations and, in no small amount, on attitudes of employers and unions.

The concept of telework has, to this point, been driven more from the needs of industry and, to some extent, employees than from defined government policy. For instance, the concept of "just in time delivery", which has been facilitated by the ability to order goods automatically for immediate dispatch, based on electronically projected use patterns, has reduced the need for storage space in business and the need for the associated staff. Similarly companies wishing to reduce property overheads, increase productivity, and deal with global time differences encourage flexible working hours and working spaces (telework) to accomplish their needs (Hillman, 1993, p. 12).

One of the first reasons for telework, or telecommuting, as it is sometimes named, was to reduce or eliminate the need for commuting to large cities. This had the triple advantage of reduction in travel (and related direct and indirect costs) for the

employee, a decrease in congestion in the city and on highways, and reduction in the need for space and its related high costs in city centres. Many types of work can be carried out at a distance - telemarketing, telesecretarial services, teletranslation, call centres (e.g., when someone in St. John's calls a local Air Canada number after 5:00 PM to inquire about flight schedules, she/he will routinely get Montreal or Toronto) and various activities related to telecomputing, to name but a few. Early trials and definitions of telework were centred around a lone worker based in his/her home utilising some form of communications network (usually computer, but sometimes telephone) to do all of his/her work for a company. The results of both trials and practical experience with this model have shown that this isolated working pattern is only viable for a very select few. On the employee side, loss of friendship, status, and opportunities for promotion: on the management side, loss of direct face-to-face contact, support, and control were all factors in developing more flexible telework opportunities (Hillman, 1993, p. 5; ECC, 1990, chap.1 & pp. 90-92). Now teleworkers function part-time at home, part-time in neighbourhood offices, part-time in cars, sometimes in hotel rooms, and sometimes - not in peak hours - in the main office.

A number of companies have implemented teleworking as part of company policy, include the following:

a) Anderson Consulting (London), instead of constructing a new building, introduced a booking system for employees who were regularly out of the office which accommodated their "logging in" for several days at a time on occasion, rather than the half an hour or so that would be normal for log-on to a host/server computer.
b) IBM reduced their need for space by 20% by introducing technology that could be used from the home, the car, or another IBM office where there were "SMART" desks.
c) AT&T in the United States, Digital in Finland, and BT in England have all significantly reduced their need for space by the introduction of telework plans

with various types of employees, from sales staff to managers (Hillman, 1993, pp. 12-13).

Similarly, a few local authorities in England have implemented full and part time telework activities. For example, since 1989, in a number of departments in the Oxfordshire Country Council, workers, mainly women, work in the office in the morning, spend the afternoon doing personal things, and complete the work day at home in the evening. Hampshire allows teleworking by its professional staff. Invernesshire, in conjunction with BT, conducted a one-year trial during which 12 directory assistance operators worked at home. In this last instance, special fold-away work-stations were built, and by agreement with the union, certain ergonomic conditions, such as appropriate lighting, were attended to; the operators' wages remained the same as those for other operators (Hillman, 1993).

A current teleworker is likely to be found for at least some of his/her time in a "tele-cottage" - a term originally coined in Scandinavia in the mid-1980s to describe a community teleservice centre. In 1990, there were some 50 such centres in Scandinavia: in 1993 there were 100. In Britain in 1992, there were 45 such units located in sites ranging from a converted farm building to a working railway station listed on the historical building list. The Rural Development Commission and BT have both contributed significantly to their development (ECC, 1990, chap.1, p. 4). In Newfoundland, the ENI telecentres serve this purpose as well as a public awareness and training functions.

4.2.2.3.1 *Other Government Initiatives:* Governments are beginning to view telework not only also as part of regional strategies that allow less prosperous towns to participate in regional growth, but also as a driver of enhanced networks into regions as a support to indigenous industrial growth. In 1993 in France, for example, the Regional Planning Ministry (DATAR), with collaboration from France Telecom and the European Community, launched a scheme for teleworking which included building

neighbourhood telecentres, attracting companies and programmes which would allow teleworking for one or more days a week, and the establishment of businesses which provided distance information services. The process also included extensive education of firms in Paris about the advantages and use of telework options. The Netherlands, concerned about environmental and congestion problems caused by traffic, has created "Platform Telework Nederland", a forum which allows government, employers and unions to discuss the implications of teleworking implementation (Hillman, 1993, pp.18-19).

Unions worry that costs such as heat, light, and insurance are being down-loaded to the worker, and taxation departments run into problems such as how to deal with taxation of "home" equipment. However, telework can, and is, used to decrease congestion in cities and as an economic development tool for more remote areas, both directly through the enhancement of high-skill employment in rural regions, and through the creation of a demand for increased network infrastructure. Indeed, even if the need to decrease urban congestion is not an issue, other factors could justify a policy change to support these initiatives, and the requirement for adequate infrastructure could help build a business case for providers.

### 4.3 SUMMARY

This chapter, has briefly revisited the government reports which point to the developing disparity between urban and rural regions due to current trends resulting from telecommunications policies that exclusively encourage deregulation and competition. It described a variety of policy instruments and directions applied in other jurisdictions to decrease the potentially negative effect in rural areas. In Chapter 5, the three options will be reviewed in light of information on the composition of the policy community and the response obtained from the questionnaires in order to determine the possibility of implementation of any of these in Newfoundland.

# CHAPTER 5 : DISCUSSION AND CONCLUSIONS

## 5.1 POLICY COMMUNITY

Section 2.8 presented the concepts of policy communities and policy networks which help structure the relationships, including differential status, which exists among interest groups. It also discussed how different authors view and classify the networks within policy communities. Part of the intent of this study is to identify changes in the telecommunications policy community during the recent years of deregulation by government and increased competition in the industry.

Tables 5, 5A, 6 and 6A (see Appendix 1) and Section 3.6 presented data that show an increase in size and complexity of the telecommunications policy community both nationally and in Newfoundland, during the study period. The following section uses the classification schemes of three authors to highlight the changes in the communities during the study period. The first is Atkinson and Coleman's which describes structural groupings. The second is the Pross approach which describes a policy community in terms of subgovernment and attentive public. The final approach is that of Lindquist, who introduces the concepts of dominant, contending and emerging networks.

### 5.1.1 *Structure of Networks (Atkinson and Coleman)*

At the macro level Canada is viewed as a weak state - a situation shaped by a number of geographic, historical, and political factors described earlier. It is a federalist state with two levels of government each with numerous access points for the many interest groups that have evolved in this century. The Atkinson and Coleman model would suggest therefore the existence of pluralist policy networks.

Atkinson and Coleman further hold that to adequately define the types of networks, one must look at the meso, or domain, level. Here the CRTC has maintained a significant and probably growing presence and influence (CRTC Annual Reports;

Table 3, Appendix 1) during the study period. It maintains a large staff, which, among other things, conducts appropriate research on behalf of the Commission. The federal government has significant internal research capacity, and when it chooses to "contract out", it can, and does, draw upon the experience of a cadre of independent consultants or research institutes.[23] In Newfoundland, although there are more limited internal resources to conduct research, the provincial government employs other approaches. As indicated earlier, DITT has enhanced its own capacity by: a) strengthening ties with its federal counterpart, IC, thereby being able to draw upon federal resources; and b) utilising arms length government agencies such as the Economic Recovery Commission, which have separate research capacity. Like the federal government, the Newfoundland government commissions independent research either from the University or through consultants such as NGL or similar provincial firms. Thus, while Tables 2 and 3 indicate a retreat from actual involvement in the regulatory aspects of this sector by both levels of government, at the same, time the departments employ a variety of policy instruments to maintain a substantial presence in this community. The state, then, while it may not conduct all its research in-house, is autonomous in the production of research and not dependent on industry or interest groups for its information.

The business sector, as indicated in Chapter 3, has maintained a continuing presence, but in recent years many new business groups with differing agendas (cable verses telephone; large verses small) have emerged. Since 1990 ITAC and NATI have begun to represent the views of information technology businesses on some matters. (See Sections 3.5.1.1 and 3.5.2.) They may be evolving toward" peak associations" but

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[23] NGL acted as the Executive Briefing Service for the CRTC Information Highway Hearings. H. Intven and R. Menard, both private consultants chaired the work of the Local Networks Convergence Committee, which produced the study "Convergence, Competition and Cooperation". Roberts and Associates oversaw the study "Distance Education and Open Learning - A Report", which, among other things, provided the Ministers of Education with information on telecommunications trends in providing more flexible learning opportunities. The Information Highway Advisory Council, chaired by David Johnson was an ad hoc committee consisting of a wide cross-section of informed persons and produced independent research and advice to the government on the "The Challenge of the Information Highway".

would not be considered to display all the necessary characteristics as yet. Tables 5 and 6 show a rapid increase in the number of groups and individuals participating in this area, but there is no particular indication that any one of the groups or individuals in this sector would have the capacity to deal on equal terms with the government.

We have then a weak state at the macro level. At the domain level there are large numbers of interest groups with considerable access points through which to influence policy. However the state in this domain maintains some autonomy. Using the Atkinson and Coleman model then, the type of policy community can be described as "pressure pluralist".

### 5.1.2 *Subgovernment and Attentive Public: Members and Growth (Pross)*

The information presented in Chapter 3 and in Tables 2-6A, when considered from the Pross epistemology of subgovernment and attentive public suggests growth and change in both over the period of this study. Looking at Tables 5, 5A, 6 and 6A an argument could be made, based on Pross's approach (see Section 2.8), for dividing the actors involved in the hearings as follows:

a) "User/ Individual Economic Units" = the **Attentive Public**. These actors, listed in the last section of all these tables, are individual entities and thus probably in the position of maintaining an informed watching brief, commenting when appropriate, but not organising national or regional ongoing lobbying or other activities.
b) All other groups in the tables (Carriers, Governments and Associations) including business associations and interest groups with ongoing national or regional mandates = the **Subgovernment**.

In the last section of Table 5, the attentive public includes "individuals" from whom there were 272 representations at the 1995 CRTC hearing compared to none in either of 1979 and 1985. Here, also, are individual businesses, film producers, hospitals,

schools, arts groups, companies, and specific social action groups (e.g., a family crisis centre in a specific community) for a total of 640 in 1995 compared to 26 in 1979. At the provincial level (see tables 6 and 6A) the direction is the same if not as dramatic - i.e., a change from 5 to 25.

The groups in the other sections of these tables (5 - 6A) comprise the subgovernment. The obvious members of the subgovernment are: a) the various government departments (federal, provincial, and municipal); b) the carriers - telephony; c) missing from the tables but implicit - the regulator(s); and, d) in specific circumstances the judiciary, as evidenced by their influence in the 1989 ruling. The other players in the subgovernment are those associations and interest groups which represent regional or national (in the case of Newfoundland province-wide) memberships such as the Canadian Association of Broadcasters (CAB), the Canadian Labour Congress (CLC), the Canadian Cable Television Alliance, the Canadian Petroleum Association, the National Anti-Poverty Alliance, National Consumer Association, Canadian Medical and Hospital Associations, etc. The category of "Business Associations" (particularly the Chambers of Commerce) have been assigned to subgovernment because collectively they represent groups of businesses and are consistent players in the political landscape.

As was the case with the attentive public Tables 5 - 6A show that the subgovernment as described by Pross has also, in this case study, grown significantly both nationally and in Newfoundland.

### 5.1.3 *Dominant, Contending, and Emerging Networks (Lindquist)*

The data in Chapter 3, indicate that nationally in the late 1970s and up to the mid-1980s the policy community consisted largely of the lead departments (nationally or provincially), the regulator(s), the telephony carriers, and a small group of business interests. The cable industry is represented at national hearings only through its Association. In 1985 a small number of interests groups appeared. Using Lindquist's

model one could argue that during the period from 1970 to 1985/86 there was only one policy network which, by default, was the dominant network. In 1989, the judiciary joined the **dominant network**. Since the introduction of the Charter of Rights and Freedoms, the Supreme Court appears to be acquiring more profile in many policy areas. Given this current role, we might assume that more matters will be referred to it over time; and given its powers, we can assume that it will continue to play a role in the dominant network of this and other policy domains. In Newfoundland, in this time frame, the community was very small indeed, with little importance attributed to the area by the provincial government and a very narrow representation, usually through legal counsel, at provincial hearings. Again, it was one dominant network focused around the telephone company and the provincial regulator.

By 1994/1995 the picture has changed substantially. The broadcast and cable companies together with their worker associations and the "content" industry - i.e., film, press/publishing/print, arts, and cultural groups appear in significantly greater numbers at the hearings. The convergence of technology and the increasing demand for bandwidth have opened an important technical door to facilitate an enlarged presence. Increasing numbers of government, business and popular press publications which focus on the need for substantial content, drive and validate the requirement for the enlargement of these new network capacities. The cable industry's history is irrevocably linked to the provision of content; therefore, for the moment, cable and content policy networks appear to be linked. In addition to the specific data assembled for this work, one could point to research such as Intven & Menard's to substantiate the cable companies' lead role as at least a "contending network". While one could not say definitely from the data presented in this study that these clusters of individuals and agencies constitute a contending network, certainly their presence and organisation has increased rapidly in this domain. Whether these two clusters (telephony and cable) will remain separate, or realign into a single, dominant network remains to be seen.

A possible emerging network is the one based around the health, education, and other public interest service groups. Both provincially and nationally, they have certainly displayed a considerable presence in hearings, round tables, and committees of the 1990s. Perhaps in a country which is accustomed to a significant government presence, this is a more acceptable approach to representation of the "common good" than more direct government action through regulation. Each of these agencies has an ongoing need, in a society that is increasingly dependent on telecommunications, for input to policy that effects the delivery of these public services (e.g., distance education networks or health networks based on shared use of patient or financial records, and similar needs in, say, justice or social services). The 1990s data pointed to an explosion of such groups, probably driven by; a) the technical opportunities opened by digital technology and convergence, b) the potential long-term impact of policy decisions made now, and c) to certain extent, the influence exerted by certain key players as alluded to in Chapter 3. However these agencies, or agencies quite like them, will continue to have provincial and national service mandates and, therefore, will continue to have a presence. This possibility was both recognised and reinforced in the CRTC's May 1995 document, when the Commission recommended that a separate tariff be filed to recognise a new customer status for education, health, and "community expression" groups (CRTC, 1995, pp. 35 & 36 of 45).

### 5.1.4 *Canadian and Newfoundland Policy Communities: General Trends*

In Table 3, one can see a centralisation of regulatory control and, therefore, on the face of it, a decrease in provincial presence. However by the 1995 hearings (Tables 5 and 6) one sees a substantial increase in representations from the government sector - particularly municipal, and with some increase in provincial. DITT representatives interviewed noted other mechanisms for input to the telecommunications policy agenda which suggested an altered but nonetheless substantial regional government role in the policy community. In Newfoundland the virtual non-existence of government involvement in hearings in the 1970s and 1980s is significantly altered by the 1994-95 period by enhanced activity of the lead department (DITT), the appearance of a

number of municipalities at hearings, and, the creation and activity of the four government agencies ENI, ERC, ENL, NLCS, all of which have telecommunications as a part of their portfolio.

Parallel to this development in the 1990s, the Communications portfolio, both nationally and provincially, was placed in the department responsible for industrial development - i.e., IC and DITT respectively - thereby linking this domain to economic rather than social policy. Although the "government officials" interviewed suggested that prior to this decade, telecommunications was purely a technical matter, the actions of the federal government in the 1970s to encourage social uses of new media suggested that a link to social policy was considered in that era. The present configuration would certainly suggest that economic considerations are now the more important.

At the same time there has been a retreat from government ownership (Table 2) and a concentration of the telephone industry into the dominant Stentor Alliance and one or two newer and smaller players such as Unitel. The concentration of power and resources in the Stentor Alliance in the telephony industry is balanced by the growing presence of the broadcast and specifically the cable industry. As an example, only one or two broadcast associations and no individual companies made representation to either of the 1979 or 1985 hearings, compared to 10 associations (5 cable TV) and 21 individual cable companies in 1995. This dramatic change can be attributed, in part, to technical convergence but, nonetheless, is a significant factor in this community.

There has been a continual representation of the business community throughout the period of study, both in the subgovernment through established associations and lobby groups and in the attentive public (individual businesses). Business association representation increased nationally from 10 in 1979 to 51 in 1995, and representations from individual non-communications-based companies has increased from 12 to 61 in the same period.

Whether as a consequence, or a cause, of the emphasis on economic outcomes, there has been a blossoming, in the subgovernment sector, of interest groups more related to the social policy area. The "social action interest groups" made their first appearance with 10 representations during the British Colombia hearing in 1985. By 1995, this group had increased to 79; no less than 61 arts, health, education, and research groups joined their ranks, as did 7 associations representing workers, up from 1 and 3 respectively 1979 and 1985. (See Tables 5 & 5A.) Similar growth in representation of these association in the subgovernment in the provincial environment can be seen through data from the hearings and round tables. In 1979 and 1980 there were no such groups appearing before the PUB compared to 5 social action interest association and 8 health, education and other in 1995 (See Tables 6 & 6A.) It should be remembered here, and throughout this section that the provincial data are drawn from appearances at telecommunications PUB Hearings in that time period ( See Footnote 10 for listing) compared to the single hearing in 1995.

Perhaps the most dramatic change that has occurred has been in the size and complexity of the attentive public. Nationally, it has grown from 26 individual agencies - exclusively banks, communications and other businesses - to 640 representations - only 117 of which were from business. Individuals accounted for 272, leaving 251 from education, health, arts, and social action groups. Provincially, representation by individual economic units (attentive public) grew from 7 and 8 in 1979 and 1985 respectively to 25 in the 1995 CRTC hearing. Table 6 shows the substantial increase in the health, education, and arts sectors in 1995. While only 2 individual Newfoundland businesses presented to the 1995 CRTC Hearing, a larger representation of the business sector (13) presented to the provincial round tables on tables on the Information Technology Strategy for a total of 34 individual economic units. (See Table 6A, Appendix 1.) Remember again that the 1970 and 1985 figures indicate presentations at all hearings in those years verse only one in 1995.

### 5.1.5 *Possible Policy Networks (Atkinson/Coleman, Pross, Lindquist)*

This section uses the three classifications discussed in previous sections and the individuals, agencies and groups identified in the thesis to identify policy networks. One would have to study the mandates of the interest groups, associations, and individuals involved in the hearings and their specific presentations to determine in detail and definitively the characteristics of networks within this policy community. However, on "face value", one could predict the following clusters could form networks.

a) The lead government departments - i.e., IC (nationally) and DITT (provincially) -as well as the Regulator would be, to varying degrees, part of all networks.

b) The telephony carriers, which on the one hand, have competitive business plans, but on the other seek certain regulatory concessions vis-a-vis the cable companies and other niche vendors, along with union groups and other national associations affiliated with these companies, would be part of the subgovernment of this dominant network. Additionally, a certain number of the attentive public, including individuals or businesses dependent on the telephony carriers for service (e.g., northern groups which depend on Telesat for all communications, or banks, which require universally available and inexpensive networks to operate their now extensive internal communications networks) could conceivably be part of a network.

c) The cable and broadcast industry with its associated unions and associations - e.g., the Canadian Association of Broadcasters, ACTRA, etc. - would form part of the subgovernment of this network. In the attentive public are film and arts groups and individuals. Other "content providers" might well belong to this contending network due to their requirement for extensive broadband capacity in order to be able to capitalise on benefits from current technologies.

d) The broader business community with the associated individual businesses as represented by Chambers of Commerce and associations like ITAC and NATI in the subgovernment, form another potential emerging network at the

subgovernment level. In the attentive public of this network are computer companies, newspapers and other businesses. In Newfoundland, arms-length government agencies like ENL and NLCS in all likelihood would belong to this network, which would seek tariffs and policy directions that support enhanced opportunities in this sector. Given the critical role of telecommunications as a transport mechanism in a knowledge-based industrial society, there are generic telecommunications issues that would be of common concern to all such enterprises.

e) Health, Education, and other "Public Interest" groups that have a broader mandate to deliver social and economic services or programmes as differentiated from "social action interest groups" that lobby provincially or nationally on specific issues, might form another emerging network. In the subgovernment this would include national/provincial health and education association like the Association of Universities and Colleges of Canada (AUCC), or the Canadian Hospital Association. The attentive public here would include individual universities, school boards, hospital distance education networks, and possibly, such groups as Ca-Net and its regionals which have grown out of university and research environments. (Note: As the functional emphasis of the Internet and the Information Highway changes from the more academic and research-oriented Ca-Net to a more private-sector oriented CANARIE, there will probably be a transition of the associated groups to a different policy network.) In Newfoundland, although there would be some cross-over, groups like ERC and ENI as well as STEM-Net and NL-Net would belong to this network.

f) With respect to "social action interest groups", some argument might be made for grouping both subgovernment (groups with national or province-wide mandates) and attentive public (localized mandate) together as a policy network, as they represent various aspects of the common good and, therefore, likely to have many concerns in common - e.g., low prices, universal access, privacy, etc.

## 5.2 ALTERNATE POLICY OPTIONS

Government studies from a number of countries including Canada have indicated that access to the information highway is key to economic viability. (See Chapter 1.) Further, these and similar studies have shown that rural areas are under-served in this area and therefore are disadvantaged. Newfoundland and Labrador has significant rural areas in which there is limited digital infrastructure. No further diffusion is planned by the principal providers, and indeed current rural infrastructure may fall into disrepair. Therefore rural Newfoundland is likely to suffer economically unless special action is taken by government.

As discussed in Chapter 4, other jurisdictions facing similar challenges have implemented a variety of policy approaches to address them. The three principal options described in Chapter 4 are explored in this section to determine the possibility of introducing one or some combination of these approaches in Newfoundland. The rationale is presented in light of the composition of the Newfoundland policy community, other available information (see Section 3.8: Summary), and recent policy direction encouraged by the CRTC in the May 19, 1995 ruling. (See Section 4.2.2.1.)

In Chapter 4, three main policy alternatives to a deregulated, market-driven competition were presented. These were:

a) introduction of complementary policy directions such as those that would enhance teleworking;
b) providing a situation in which some sort of aggregated demand might be developed; and
c) changing the regulatory approach from rate of return to incentive regulation.

Not surprisingly, it would appear from the data in Chapter 3 that some aspects of each could apply, but the most likely starting point for consideration would be based on

alternative "b", cooperation and aggregation of demand. The proposed approach is a variation of those suggested by either the U.S. Congress Report or by Parker and Hudson. The scenario will depend on cooperation of community and carriers to aggregate or share demand in certain key areas which will lead to enhanced levels of service in rural regions in general although not in every community. There could be tiered levels of service spinning out from key communities constrained to some extent by population and distance from key towns but tempered by consistent demand in the near regional centres.

### 5.2.1 *Telework*

Based on a) data from the interviews with the telecommunications providers whose individual business plans do not support further diffusion of infrastructure to allow enhanced services in remote communities, b) the current extent of competition provincially (i.e., it exists to some extent and for specific services in 10 or 12 large communities with virtually none elsewhere), and c) the experience of the user in Milltown (i.e., which shows the lack of adequate infrastructure to support data transmission even at slow speeds), it would appear that attempting to change or implement public policy to accommodate telework would not be the first step to be taken. Technical facilities are not available to support telework where it is most needed; neither are they likely to be if the current environment remains unchanged. Policy and legal changes could be undertaken to facilitate telework and delivery of enhanced services such as telemedicine on the "urban fringe" of key towns and between key towns and the major cities. However telework might help establish the market for telecommunications providers, it probably would best be applied in communities that are "urban fringe" or "service-type" such as St. Anthony or Stephenville, where the basic infrastructure seems to be more reliable. For the present, this should probably be a complementary and longer-term policy initiative from a provincial perspective.

### 5.2.2 *Cooperation to Aggregate Demand*

However, based on the description of the policy community, both national and provincial, and the comments of the interviewees, there does appear to be potential to concentrate on expanding collaborative initiatives by focusing and stabilising regional demand and facilitating the public sector, carrier (telecom and broadcast) and community collaborations that will be required to achieve this goal . Various initiatives are already under way; common government instruments can be utilised to broaden these while drawing on concepts from the policy models described previously.

The provincial government has forged the link between the telecommunications and economic development sectors (which was cited as an important factor by Schmandt et al., 1989; U.S.Congress, 1990; Parker & Hudson, 1995). Operation ONLINE,the implementation task force for the IT strategy, recognises the link between good communications infrastructure and economic development as a key underpinning of its mandate. As a result, many of its action items bring key players of these two communities together, particularly in urban settings (NGL, 1994). In rural settings as can be seen from the description of the communities (which are not atypical of other communities of similar size in the province) there are rural economic development officers who are supported by either provincial or federal government. These officers are located at least in the larger communities and also in, or close to, a variety of smaller communities such as Milltown. These officers are not only aware of the development needs and constraints of their regions but, in recent years, have been actively engaged in using and exposing businesses in their communities to the use of telecommunications networks through their association with ENI.

There are points of presence of two or more public interest networks Telemedicine/TETRA, STEM-Net, and ENI - in at least 150 communities in the province, with 20 of these communities (again, key regional towns) having NL-Net routers, based in the education facilities in the communities. In addition to these established networks, the health care system (see comments of Cable Atlantic

interviewee) has recently restructured into five regional hospital boards and two community health boards, each of which requires, and is planning for, significant telecommunications capacity for its administrative and patient-care activities. The various public sector actors associated with these points of presence could form the core of a consortium in order to a) form a cohesive medium- to long-term plan for the use of these networks and b) identify and implement collaborative mechanisms among them to secure the economies of scale that could assist long-term use. The potential players in rural settings include school principals and teachers, school board superintendents, principals of community colleges, hospital administrators, hospital board chairs, and professional staff, public librarians, and rural development officers; in St John's (the principal urban location) the directors and other key staff of the networks could be added to the roster.

Either DITT (because it is the lead department for telecommunications policy) or one of the central agencies (e.g., Treasury Board), could convene discussions among the various line departments of government which form the principal users of the public interest networks (e.g., education and health, along with educational institutions such as the University and colleges), to determine mid- and long-term (5 year) plans for service delivery for distance education, telemedicine or administrative requirements. This would be based on departmental need and population predictions for each area.

Work has begun on the establishment of provincial Economic Zones. The Interim Boards have been tasked to develop economic plans for their zones. The provincial government could ensure, through sponsored round tables or engaging consultants to conduct strategic planning sessions in each zone, that the telecommunications needs of the key towns and their surrounding regions in relation to support of economic development and public services are clearly identified at the zonal level. These impartial fora could be used to help communities determine their community requirements and differentiate between needs that could be addressed through regional hubs based in the key towns as well as the requirements that are necessary in each

smaller community clustered around these key towns. The demand could be aggregated at the key towns which also, by and large, house hospitals, college campuses, and major government offices. Higher speed access and more sophisticated services could be available through these key towns.

The core of the group/local policy community to define and support a collaborative and sustaining presence could be formed from the principal urban and public- (and quasi- public) sector rural actors, with private-sector rural players being consulted and incorporated in the planning exercise as they feel comfortable.

As was seen in Chapter 3, there are a number of ways of providing the physical infrastructure for low- and high-speed digital communications: notably, in this instance at least through telephony approaches, through cable, and through V-SAT type mechanisms. In rural regions all three of these agencies might have to be brought into play to address needs. The potential providers seem predisposed to seek collaborative solutions to provision of services in rural areas. This might be attributed to a number of reasons, including a desire to be responsible corporate citizens. No doubt, other factors are at play here - more practical motives, such as whether it makes good business sense to try to do business in a province that is not economically viable, and the fact that each agency appears to see a more lucrative market in content or service development rather than in straight network provision, so that collaboration on that front would free resources for information services.

Once zone and departmental plans have been identified, DITT and perhaps WST and NISL[24] could play a lead role in bringing the various providers together to determine creative and collaborative technical solutions to provide the tiered service requirements

[24] In 1994, Newfoundland and Labrador Computer Services, the division of government that provided all data services, networked and stand alone, to the provincial government, was privatised. It was bought by Newtel Enterprises Ltd., the parent company of NTC, Anderson Communication, and Bell Sigma and was renamed Newtel Information Solutions Ltd. (NISL). As part of the agreement of sale, it was agreed that for the 7 years subsequent to its privatisation, NISL would be the sole provider of services in this area to the provincial government.

in each of the zones. The "carrot" would be a certain commitment from government and a clear, relatively cohesive or aggregated demand from the communities/zones. While five-year commitments from government are not easily forthcoming, if delivery of service is begun in these areas, it is not likely to disappear rapidly, as commitments will have been made to constituents. Further if ongoing application of these strategies serve the dual purpose of a decreasing the cost of delivery of public services, and acting as a driver of network capacity that will help economic viability in a region, greater support might be garnered for longer-term commitment. The government's role here would be both to help find a mechanism that will both facilitate the companies' commitment to collaboration and also to share the risk of extending the network's reach beyond the communities and services which these companies now individually offer. The following are some relevant factors and policy instruments that could be brought into play to encourage the initiative.

1. In order to encourage competition and diversification of services, the CRTC, in its Telecom Decision 94-19 (see Table 1), described instances in which a customer-specific arrangement could be considered. The ruling stated that:

> In the Commission's view there are two general types of customer-specific tariffs:
>
> (1) .....
>
> (2) Those providing a bundle of services tailored to a particular customer's needs, primarily involving elements available from a general tariff, where the purpose is to customize the offering in terms of rate structure or levels ( for example, distance sensitive/insensitive, usage sensitive/insensitive, one time charges, etc) (Telecom Decision 94-19, p. 104)
>
> .....
>
> The Commission will also permit the second type of arrangement noted above, subject to the following...
>
> (b) the telephone company demonstrating in its tariff application that there is not sufficient demand to offer any customer-specific elements of the service through the general tariff (Telecom Decision 94-19, p. 105).

2. The May 1995 CRTC Ruling suggested, among other things, that educational and health tariffs be set. Action is already being taken through Public Notice 95-44: Tariffs for Education and Health (external). The Stentor Alliance has presented its initial response. Knowing what direction this will take and therefore the framework that will be set for individual filings will help in long-term planning and costing for the public interest networks. The outcome of this decision will influence the degree of collaboration that can be assembled under the umbrella of "public interest networks" to provide the core rationale for ongoing high-speed access to the key zone towns. The provincial government could then lobby for a broader interpretation of education, health and "community expression", if necessary.[25]

3. In the same ruling, the CRTC stated that rural areas will require a different approach to telecommunications provision than urban regions. The Commission stated that competition, collaboration, and subsidy were its preferences, in that order. If the providers agreed on a collaborative approach to providing high-end services (sharing both profit and risk) to the key towns in the zones based on the relatively stable demand of the public interest networks and supplemented by the more fluid requirements of the private sector, then a case might be developed for the CRTC to allow a special tariff for a RAN-type consortium in each of the towns feeding into the key hubs under the customer description of Decision 94-19, above. This would fit within the framework of collaboration by both the providers and the community, and it stops short of subsidy. It would allow an aggregated demand in communities where a whole community could take advantage of a currently known service, for instance an Advantage Preferred rate or a 1-800 number. Because the risk would be shared among provider companies and there would be a cohesive and predictable plan for use by the key and peripheral communities the companies might find this option workable particularly given the corporate philosophies discussed earlier.

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[25]In October, 1996 the CRTC released Telecom Decision X*&^& which approved the new client category of public schools, colleges, universities, libraries and health care facilities. Stentor is now tasked with presenting the rationale for acceptable groups and agencies to fall within the classification.

4. Linked to the above, there might be a need for the government to play a more direct role, possibly through the technical staffs of the public interest networks, to fund the establishment and operation of V-SAT-type hubs in remote zones with small overall populations and more geographically dispersed communities. Of the 19, there are possibly two in Labrador and one on the south coast of the island. Here, the technical hubs could be operated by the public service networks, with private/public sector partnerships being arranged for maintenance. Broader use of these hubs, to include economic development activities and private-sector usage, could be negotiated between the government, telecommunications providers, and the directors of the public interest networks in order to help develop and focus any demand that might exit in those regions. At such time as a commercially viable alternative becomes available privatisation arrangements can be sought. This role of a market developer is not unknown to the public-interest networks; indeed, a current model is in place with NL-Net, which provides Internet services to a wide variety of clients in a community until such time as a commercial vendor establishes itself.

5. In early 1996 the Newfoundland government announced a scientific research and experimental development tax credit system[26] linked to the similar federal credit system (Govt. Nfld., 1996). It includes a tax credit for the development of information technologies. Perhaps this credit could be utilised to help alleviate the up-front costs of planning these innovative approaches.

### 5.2.3. *Changing the Regulatory Approach*

It is known that the CRTC is exploring a price capping system such as that mentioned in Section 4.2.2.2. If this type of regulation is implemented, and other efforts to engender cooperation provincially fail, the Newfoundland government might be able to leverage the capping system with tax incentives or credits to encourage the telephone

[26]Bill 3: An Act to Amend the Income Tax Act. First Session, 43rd General Assembly: 45 Elizabeth II, 1996. Honourable Paul Dicks , QC, Minister of Finance. Royal Assent June 18, 1996.

company to form partnership that will provide cost effective mechanisms to achieve the desired levels of service in each zone.

## 5.3 CONCLUSIONS

The thesis posed two questions for study: the first related to the changes in the policy community and the second related to possible alternate policies which might be considered for implementation in Newfoundland - a province with large rural regions.

With regard to the first, the data show that there has been a dramatic increase in the size and complexity of the telecommunications policy community, both nationally and in Newfoundland. Significant entries during the period of the study were the judiciary, the cable companies, and, possibly, new peak associations (ITAC and NATI). Changes within the community were demonstrated using various refinements of the policy networks described by the authors Atkinson and Coleman, Pross, and Lindquist.

With regard to the possibility of applying alternate policy approaches in the Newfoundland environment the study revealed the following:

a) Newfoundland's telecommunications policy direction is heavily influenced, and indeed some might say dictated, by the CRTC. While many may see this as positive, the CRTC is committed to competition as the driver for better and more cost effective service. It does however see cooperation as a second alternative if competition is not feasible.
b) There are few, if any, competitors (and indeed providers) of enhanced digitally based services in rural and remote communities.
c) No telecommunications provider interviewed could produce individually based business cases to provide (and, in some cases even maintain existing) enhanced services to these communities.
d) A telecommunications policy community is growing in the country and in Newfoundland which has some links to the economic development policy community.

e) Within the policy community in Newfoundland, there are rural and urban actors from both the public and private sectors who are predisposed to collaborative ventures even if such cooperation cannot be driven by the local community.

These facts indicate that there is an opportunity for Newfoundland to explore policy options based on collaboration and aggregation of demand to enhance the sustainability and viability of its rural regions. The literature and other information discussed in this work argue that continued economic viability will depend on, among other factors, adequate access to the information highway. Where there is both need and opportunity it might be timely that the Government of Newfoundland explore implementation of policy options that complement national directions but also enhance provincial possibilities to deploy modern telecommunications services to support alternate forms of employment, education and health services in rural communities in the province.

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# APPENDIX 1

## TABLES

## TABLE 1
## FEDERAL INTERCONNECT DECISIONS

| CRTC DECISION | RESULT |
|---|---|
| 79-11 | CNCP can complete in provision of interconnected private line voice and data communications and public data telecommunications services in Bell Operating territory. |
| 81-24 Nov. 1981 | Extended CNCP interconnection of Decision 79-11 to B.C. Tel operating territory. |
| 80-13 | Telephone subscribers in Bell operating territory can hook up their own terminal equipment (telephone sets, PBX) to Bell's telephone network. |
| 81-19 | Extend 80-13 to B.C. Tel subscribers |
| 82-14 | This decision set out the terms and conditions governing the attachment of subscribers provided terminal equipment to networks of all federally regulated telecommunications carriers. |
| 84-10 | Permits interconnection of cellular and conventional public and private mobile radio systems to the public switched telephone network. However, only mobile to mobile calls or calls initiated or terminated on a mobile terminal permitted on inter-exchange facilities between mobile systems. |
| 85-19 | Approved application by B.C. rail to compete with B.C. Tel in the provision of certain private line voice and data services.<br><br>Allowed interconnection of private local systems and public non-voice local systems to facilities of the federally regulated common carriers.<br><br>Denied CNCP application to compete with Bell Canada and B.C. Tel. in the provision of long distance telephone services (MTS, WATS)<br><br>Allowed resale and sharing of telecommunications services (other than long-distance public telephone service and primary voice exchange service) |
| 86-18 | CRTC denied CNCP's request to rescind the part of Decision 85-19 that denies CNCP's application to provide long-distance public telephone service |
| * 90-3 | Allow interconnection of private line services to facilities of Telecom Company carriers in Atlantic provinces.( See similar ruling for federally regulated companies 85-19) |
| * 92-12 | "Unitel Decision." Introduction of competition in long distance. |
| * 94-19 | Alter framework for tariffs on local access. Unbundling of local loops and long distance. |
| ** 95 | A) Recommend that education, health and community expression be recognised as new class of customer.<br>B) Recognise that rural environments special case in competitive system. |

*Sources: Globerman & Carter, 1988, p. 9; CRTC: Telecom Decision, 1990, 1992 & 1994; Competition and Culture on Canada's Information Highway, CRTC, May 19, 1995*

## TABLE 2

### OWNERSHIP OF MAJOR CARRIERS IN THREE PERIODS

| COMPANY | 1978/79 | 1985/86 | 1991/92 |
|---|---|---|---|
| A.G.T.* | Province | Province | Telus /Private |
| Bell Canada* | Private | Private | Private |
| B.C. Tel* | Private | Private | Private |
| Ed.Tel/Thunder Bay | City | City | City |
| Island Tel.* | Private | Private | Private |
| Manitoba* | Province | Province | Province |
| Maritime Tel & Tel* | Private | Private | Private |
| NB Tel* | Private | Private | Private |
| NTC* | Private | Private | Private |
| TNT | Fed/Priv. | Fed/Priv. | NA |
| NW Tel* | Fed/Priv. | Fed/Priv. | Private |
| Sask-Tel* | Province | Province | Province |
| CN/CP - Unitel** | Public/Priv. | Public/CNR CPR | Private (40% Roger) |
| 45+ Small Independents | Private | Private | Private |
| Telesat* | Fed/Telecom | Fed/Telcom | Private |
| Teleglobe | Federal | Federal | Private |
| Public - Public/ Private Partnerships | 9 | 9 | 3 |

***Sources:*** ***1991/92*** *Intven/Manard (1992) p.142: Babe 1990:* ***1985/86*** *p.30: CRTC 1985/86 Annual Report:* ***1979/80*** *CRTC Decisions and Policy Statements 5 crt p.189 - 196CRTC Annual Report:1978/79 (Woodrow and Woodside 1986, p.127, Communications Canada 1987 p. 44 - 45)*

* ***MEMBER OF STENTOR ALLIANCE***

** ***NOT OFFICIAL JOINT VENTURE AT THIS TIME (I.E. IN 1995)***

## TABLE 3

### REGULATION OF MAJOR CARRIERS IN THREE PERIODS

| COMPANY | 1978/79 | 1985/86 | 1991/92 |
|---|---|---|---|
| A.G.T.* | Alberta | Alberta | CRTC |
| Bell Canada* | CRTC | CRTC | CRTC |
| B.C. Tel* | CRTC | CRTC | CRTC |
| Ed.Tel/Thunder Bay | City | City | City |
| Island Tel.* | PEI | PEI | CRTC |
| Manitoba Tel System* | Manitoba | Manitoba | CRTC |
| Maritime Tel & Tel* | NS | NS | CRTC |
| NB Tel* | NB | NB | CRTC |
| NTC* | NF | NF | CRTC |
| TNT | CRTC | CRTC | NA |
| NW Tel* | CRTC | CRTC | CRTC |
| Sask-Tel* | Sask Minister | Sask Minister | Sask Minister |
| CN/CP - Unitel | CRTC | CRTC | CRTC |
| 45+ Small Telephone Companies | Province | Province | Province |
| Telesat | CRTC | CRTC | CRTC |
| Teleglobe | Fed- Minister | Fed Minister | Fed Minister |
| Total Provincial & City Regulators | 8 Province 1 City | 8 Province 1 City | 2 Province 1 City |

***Sources:*** ***1991/92*** *Intven/Manard,1992, p.142;* ***1985/86*** *CRTC 1985/86 Annual Report:* ***1979/80****: CRTC Decisions and Policy Statements 5 ert p 189/96, CRTC Annual Report, 1978/79: Woodrow & Woodside, 1986, p.127*

* ***Part of Telecom Alliance***

## TABLE 4

## CRTC RULINGS ON TELESAT

| DATE | DECISION SUMMARY |
|---|---|
| 1979 | Allowed cable and television stations to own their own TVROs (Television Receive Only Terminals) |
| 1981 | Telesat permitted to sell partial channels. This meant that a given company could purchase only the time or bandwidth it needed for broadcasting. |
| 1984 | Licensed broadcasters could resell excess capacity for broadcasting. This meant a company could buy a full channel at the better rate and resell unused portions to recover costs. |
| 1985 | Resellers permitted to resell channel for any purpose except voice. |
| 1986 | Under revised interconnect rules Telesat no longer restricted to dealing with the common carriers and broadcasters. Therefore even though Telesat was 50% owned by Telecom Canada it was not reliant on the Alliance. |

***Sources: Babe, 1990, chap. 18 pp. 222-228; Woodrow & Woodside, 1986, pp. 128-129***

## TABLE 5
### PRESENTERS TO CRTC HEARINGS BY MAJOR CATEGORY

| GROUPS | DECISIONS | | | |
|---|---|---|---|---|
| | 79-11 | 85-19 | 86-18 | 1994/95 |
| **CARRIERS** | **10** | **16** | **16** | **9** |
| • TCTS/Telcom/Stentor | 9 | 9 | 9 | 3 |
| • CNCP UNITEL | 1 | 1 | 1 | 1 |
| * CNCP Subsidiary | – | 1 | 1 | – |
| • Others | – | 3 | 3 | 4 |
| • Telesat | – | 1 | 1 | 0 |
| • Teleglobe | – | – | – | 1 |
| • Cell Radio | – | 1 (Cantel) | 1 | 0 |
| **GOVERNMENTS** | **8** | **9** | **5** | **61** |
| • Federal | 1 | 1 | 1 | 3 |
| • Provincial | 7 | 8 | 4 | 11 |
| • Municipal | – | – | – | 47 |
| **ASSOCIATIONS** | **24** | **27** | **33** | **236** |
| • ***Business*** | | | | |
| • Chambers of Commerce | 1 | 0 | 1 | 33 |
| • Other Inc. Rotery | 9 | 6 | 8 | 18 |
| • ***Communications*** | | | | |
| • CAB/Nat. & Prov | 1 | – | 1 | 4 |
| • Canadian Press | 1 | 1 | 1 | – |
| • C.I.P.S | 1 | – | – | – |
| • ITAC | *NA* | *NA* | *NA* | – |
| • CATA | – | – | – | – |
| • ACTRA | – | – | – | 1 |
| • Cable/TV | 1 | 1 | 1 | 5 |
| • Others | 6 | 6 | 7 | 26 |
| • Education | – | – | – | 16 |
| • Social Action Interest Groups* | – | 10 | 11 | 79 |
| • Union/Labour/Work | 1 | 2 | 3 | 7 |
| • Arts/Historical | – | 1 | – | 15 |
| • Health | – | – | – | 15 |
| • Research | – | – | – | 5 |
| • Other | 3 | – | – | 12 |

## TABLE 5 (CONT'D)
### PRESENTERS TO CRTC HEARINGS BY MAJOR CATEGORY

| GROUPS | DECISIONS | | | |
|---|---|---|---|---|
| | 79-11 | 85-19 | 86-18 | 1994/95 |
| **USERS/INDIVIDUAL ECONOMIC UNITS** | **26** | **4** | **13** | **640** |
| • Health (eg.Hosp/Foundation) | – | – | – | 24 |
| • Public Libraries | – | – | – | 15 |
| • Banks | 4 | – | – | – |
| • Distance Education or Value Added Networks | – | – | – | 10 |
| • Press/Publishing/Print | – | – | – | 10 |
| • Regional/Economic Devel. Group | – | – | – | 5 |
| • CA/Internet/Info Highway | – | – | – | 5 |
| • Arts/Heritage | – | – | – | 31 |
| • Communications Companies | | | | |
| • video | – | – | – | 8 |
| • film | – | – | – | 4 |
| • TV Cable | – | – | – | 21 |
| • Radio | – | – | – | 6 |
| • Computer | 9 | – | – | 6 |
| • Communications Co. Other | 1 | 3 | 4 | 11 |
| • Companies General | 12 | – | 2 | 61 |
| • Education (Sch's, Sch Brd's, Colleges/Universities) | – | – | – | 58 |
| • Social Interest Group Indivual** | – | – | 3 | 38 |
| • Individuals | – | – | 4 | 272 |
| • Others | – | 1 | – | 38 |
| • Not Categorized | – | – | – | 17 |
| **TOTAL** | **68** | **56** | **67** | **946** |

*NA* ***Not Applicable***

* ***For Example poverty, environment, consumer groups with national/provincial jurisdictions***

** ***For Example , <u>individual</u> Catholic Family Services, churches, or Status of Women's Offices***

## TABLE 5A
### PARTICIPANTS IN COMMISSIONS/SUPPORTING DATA BY MAJOR CATEGORY

| GROUPS | Clyne (1979) | Spicer (1990) | Information Highway Council (1995) |
|---|---|---|---|
| **CARRIERS** | **6** | | **7** |
| • TCTS/Telcom/Stentor | 3 | | 3 |
| • CNCP UNITEL | 1 | | – |
| * CNCP Subsidiary | – | | – |
| • Others | – | | 2 |
| • Telesat | 1 | | – |
| • Teleglobe | 1 | | 1 |
| • Cell Radio | – | NO DETAILED DATA ON | 1 |
| **GOVERNMENTS** | **14** | INTERVENERS AVAILABLE | **2** |
| • Federal | 2 | | – |
| • Provincial | 12 | SEE TEXT | 2 |
| • Municipal | – | SECTION 3.6.1 | – |
| **ASSOCIATIONS** | **11** | | **9** |
| • ***Business*** | | | |
| • Chambers of Commerce | – | | – |
| • Other Inc. Rotery | 1 | | – |
| • ***Communications*** | | | |
| • CAB | – | | – |
| • Canadian Press | 1 | | – |
| • C.I.P.S | – | | – |
| • ITAC | NA | | – |
| • CATA | 1 | | – |
| • ACTRA | 1 | | 1 |
| • Cable/TV | – | | 1 |
| • Others | 4 | | 1 |
| • Education | – | | – |
| • Social Action Interest Groups* | – | | 2 |
| • Union/Labour/Work | 1 | | 2 |
| • Arts/Historical | – | | – |
| • Health | – | | – |
| • Research | 1 | | 2 |
| • Other | – | | – |

## TABLE 5A (CONT'D)
### PARTICIPANTS IN COMMISSIONS/SUPPORTING DATA BY MAJOR CATEGORY

| GROUPS | Clyne (1979) | Spicer (1990) | Information Highway Council (1995) |
|---|---|---|---|
| **USERS/INDIVIDUAL ECONOMIC UNITS** | **6** | | **48** |
| • Health (eg.Hosp/Foundation) | – | | – |
| • Public Libraries | – | | 2 |
| • Banks | 4 | | – |
| • Distance Education or Value Added Networks | – | | 3 |
| • Press/Publishing/Print | – | NO DETAILED | 5 |
| • Regional/Economic Devel. Group | – | DATA ON | 1 |
| • CA/Internet/Info Highway | – | INTERVENERS | 4 |
| • Arts/Heritage | – | AVAILABLE | – |
| • Communications Companies | | | |
| • video | – | SEE TEXT | – |
| • film | – | SECTION 3.6.1 | – |
| • TV Cable | – | | 5 |
| • Radio | – | | – |
| • Computer | 1 | | 4 |
| • Communications Co. Other | 4 | | 9 |
| • Companies General | – | | 2 |
| • Education (Sch's, Sch Brd's, Colleges/Universities) | – | | 7 |
| • Social Interest Group Indivual** | – | | 1 |
| • Individuals | 1 | | 2 |
| • Others | – | | 3 |
| • Not Categorized | – | | – |
| **TOTAL** | **38** | | **66** |

*NA* *Not Applicable*

* *For Example poverty, environment, consumer groups with national/ provincial jurisdictions*

** *For Example , Individual Catholic Family Services, churches, or Status of Women's Offices*

## TABLE 6
### NFLD PRESENTERS TO ALL PUB HEARINGS & 1994/95 CRTC HEARING

| GROUPS | 1979/80 | 1985/86 | 1994/95 |
|---|---|---|---|
| **CARRIERS** | **2** | **1** | **2** |
| • Avalon Tel/NTC | 1 | | Thru. Stentor |
| • CNCP/TNT | – | | Thru Unitel |
| • Labrador Tel. | 1 | | |
| **GOVERNMENTS** | **2** | **1** | **9** |
| • Provincial/Dept | 1 | – | 2 |
| • Municipal | – | – | 7 |
| • Federation of Municipalities | 1 | Consumer Advocate | – |
| • Federal | – | – | – |
| **ASSOCIATIONS** | **1** | **0** | **15** |
| • ***Business*** | | | |
| • Chamber of Commerce | 1 | – | 2 |
| • Other Include. Rotary | – | – | – |
| • ***Communications*** | | | |
| • CIPS | – | – | – |
| • ACTRA (NF) | – | – | – |
| • NATI | *NA* | *NA* | – |
| • Education | – | – | 3 |
| • Social Action Interest Groups* | – | – | 5 |
| • Unions/Labour/Work | – | – | – |
| • Arts/Historical | – | – | – |
| • Health | – | – | 2 |
| • Research | – | – | – |
| • Other | – | – | 3 |

## TABLE 6 (CONT'D)
## NFLD PRESENTERS TO ALL PUB HEARINGS & 1994/95 CRTC HEARING

| GROUPS | 1979/80 | 1985/86 | 1994/95 |
|---|---|---|---|
| **USERS/INDIVIDUAL ECONOMIC UNITS** | **7** | **8** | **25** |
| • Health | – | 5 | 4 |
| • Libraries | – | – | 3 |
| • DE/VANS | – | – | 1 |
| • Press/Publish/Print | – | – | – |
| • Reg./Econ. Development Council | – | – | 2 |
| • Arts/Heritage | – | – | 4 |
| • Communications Co.'s | | | |
| • Cable TV | – | 1 | 1 |
| • Computer | – | – | – |
| • Communication Co. General | – | 1 | 1 |
| • Provincial Crown Corp.*** | – | – | – |
| • Companies General | 4 | 1 | – |
| • Education (School/Col/Univ/Sch Bds) | 1 | 1 | 3 |
| • Social Interest Groups Individual*** | – | – | 3 |
| • Individuals | 2 | – | 1 |
| • Other | – | – | 1 |
| **TOTAL** | **12** | **10** | **51** |

*NA Not Applicable*

* *For Example poverty, environment, consumer groups with national/ provincial jurisdictions*

** *ENI,ENL, NLCS (Now NISL) and ERC*

*** *For Example , Individual Catholic Family Services, churches, or Status of Women's Offices*

## TABLE 6A
### NFLD PRESENTERS TO PROVINCIAL COMMISSIONS AND IT ROUND TABLES

| GROUPS | 1979/80* | 1985/86* | 1994/95 IT RND Tables |
|---|---|---|---|
| **CARRIERS** | | | **2** |
| • Avalon Tel/NTC | | | 1 |
| • CNCP/TNT | | | 1 |
| • Labrador Tel | | | – |
| **GOVERNMENTS** | | | **6** |
| • Provincial/Dept | | | 3 |
| • Municipal/Dept | | | – |
| • Federal | | | 3 |
| **ASSOCIATIONS** | | | **3** |
| • ***Business*** | | | |
| * Chambers of Commerce | | | 1 |
| * Other Include. Rotary | | | – |
| • ***Communications*** | | | |
| * CIPS | | | 1 |
| * ACTRA (NF) | | | – |
| * NATI | | | 1 |
| • Education | | | – |
| • Social Action Interest Group | | | – |
| • Unions/Labour/Work | | | – |
| • Arts/Historical | | | – |
| • Health | | | – |
| • Research | | | – |
| • Other | | | – |

## TABLE 6A (CONT'D)
### NFLD PRESENTERS TO PROVINCIAL COMMISSIONS AND IT ROUND TABLES

| GROUPS | 1979/80* | 1985/86* | 1994/95 IT RND Tables |
|---|---|---|---|
| **USERS/INDIVIDUAL ECONOMIC UNITS** | | | **34** |
| • Health | | | 2 |
| • Libraries | | | – |
| • DE/VANS | | | 2 |
| • Press/Pub/Print | | | 1 |
| • Economic Regional Devel. Councils | | | 1 |
| • Arts/Heritage | | | – |
| • Communications Co. | | | |
| • Cable TV | | | 1 |
| • Computer | | | 6 |
| • Communications Co. General | | | 2 |
| • Provincial Crown Corp.** | | | 4 |
| • Companies General | | | 9 |
| • Education (Sch/Col/Univ/Sch. Brds) | | | 6 |
| • Social Interest Groups Individual | | | – |
| • Individuals | | | – |
| • Other | | | – |
| **TOTAL** | | | **45** |

* *No Provincial Auxilary Commissions or Round Tables in this Period*
** *ENI, ENL, NLCS (now) NISL and ERC*

# APPENDIX 2

## GLOSSARY AND ABBREVIATIONS

**ABE** Adult Basic Education. Accredited upgrading for adults which gives equivalency for junior high school and high school levels.

**ATM** Asynchronous Transfer Mode. High-speed switched circuits which will form the technical basis of the " Information Super-highway". This technology will allow high speed circuits to be used on an "as needed" basis in much the same way that ordinary telephone circuits or lines are used at the moment.

**Bandwidth** The difference expressed in Hertz (cycles per second) between the highest and lowest frequencies of a transmission channel or circuit - i.e., a measure of the volume of communications traffic that the circuit or channel can carry.

**BPS** Bits per second. An expression of the speed at which a piece of binary information is transmitted on a circuit - e.g., 9600 bps.

**CMEC** Council of Ministers of Education of Canada.

**CIPS** Canadian Information Processing Society.

**CANARIE** Canadian Network for the Advancement of Research in Industry and Education. A non-profit corporation mandated to encourage the development of the information highway in Canada.

**Ca-Net** The backbone of the Internet in Canada

**DATAPAC** A commercial service which allows data to be transferred on ordinary telephone lines.

| | |
|---|---|
| **DITT** | Department of Industry, Trade and Technology, Government of Newfoundland and Labrador. |
| **ECC** | European Communities' Commission. |
| **ENI** | Enterprise Newfoundland Incorporated. |
| **Fibre Optics** | Glass strands which allow the transmission of modulated light waves for sending and receiving telecommunications messages. |
| **IHAC** | Information Highway Advisory Council. |
| **ISDN** | Integrated Services Digital Network. A set of standards for integrating voice, data, and image communications. It allows these services to be transmitted simultaneously on two digital telephone lines, with a total transmission capacity of 128Kps. This type of service is quite common in Europe and is becoming more so in North America. |
| **IC** | Industry Canada |
| **ITAC** | Information Technology Alliance of Canada. |
| **KPS** | Kilobits per second - i.e., 1000 bps. A standard measure of data rates. |
| **LAN** | Local Area Networks. A special linkage of computers (and sometimes other communications devices) into an internal network for use by a department or organisation. |
| **NATI** | Newfoundland and Labrador Alliance of Technical Industries. |

**NL-Net** Newfoundland regional of Ca-Net.

**OECD** Organization for Economic Cooperation and Development. An international Organization of some 24 countries which cooperate in areas of economic and sustainable development.

**Router** An electronic device which enables the selection of a correct circuit to send a digital message along a circuit in order to reach its destination.

**STEM-Net** Science, Technology-Education and Math Network. An Internet type network operating in all schools in Newfoundland and Labrador.

**TETRA** Telemedicine and Educational Technology Resources Agency. An agency which provided instructional design, production and network capacity to support distance education activities.

**TNT** Terra Nova Telephone Company.

**TVRO** Television Receive Only Terminal. A small earth station (communication station on the earth's surface used to communicate with satellites) which can only receive messages from a satellite for viewing; they cannot sent messages to a satellite.

**V-SAT** Very Small Aperture Terminal. A small-diameter satellite terminal. Usually used for reception only but can be configured for low speed transmission as well. Often used to support teaching networks either in the public or private sectors.

**WAN** Wide Area Network. A special data communication arrangement or linkage of computers and other communications devices, similar in concept and use to a LAN (see above), in which the computers are dispersed over a large geographic area - e.g., city or province. Automatic banking machines, for instance, are connected on a WAN.

**WST** Department of Works, Services and Transportation, Government of Newfoundland and Labrador.