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James Alexander Roy Brothers

TELESAT CANADA - PEGASUS or TROJAN HORSE?

A case study of mixed, composite and crown enterprises

M.A. dissertation
Carleton University
School of Public Administration
Ottawa

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Graduate Studies acceptance of the thesis

TELESAT CANADA - PEGASUS or TROJAN HORSE?
A case study of mixed, composite and
crown enterprises

submitted by James Alexander Roy Brothers
in partial fulfilment of the requirements for the
degree of Master of Arts in Public Administration.

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ABSTRACT

The thesis examines Telesat Canada as a case study in mixed enterprises. The central hypothesis is that there is a low probability of direct public-private sector control being shared on an equal basis, of influence being matched, and of divergent value(s) or premise(s) being significantly blended among the Telesat management in lieu of the general public, the federal Cabinet, and the approved telecommunications common carriers.

The case study primarily addresses three questions. Why did the federal Cabinet seek to reorganize the Canadian communications policy field between 1964 and 1978? Why did the federal Cabinet accept the Privy Council Office's recommendation that a mixed enterprise should be used for the domestic adoption of satellite communications and how has the mixed enterprise evolved in practice? Why were three Anik satellites with twelve radio frequency channels purchased even though the federal Cabinet probably had been advised on one or more occasions by the Privy Council Office that only one spacecraft with three radio frequency channels could be operated on a commercial basis?

The central hypothesis is generally valid in that the analysis shows the growing dominance of the approved telecommunications common carriers and an abrogation of responsibility by the federal Cabinet and Telesat Canada. The former dominance was facilitated by the façade of a mixed enterprise.

No single body of theory adequately captured or predicted the decision and organizational processes analyzed. The thesis utilizes the work of Dahl and Lindblom, Musolf, Perrow, ~~Bergie~~ and Cyert and March.

Between the idea
And the reality
Between the motion
And the act
Falls the shadow

T.S. Eliot

TABLE OF CONTENTS

Item	Page Number
INTRODUCTION	1
PART I	
PUBLIC-PRIVATE SECTOR RELATIONSHIPS IN THE COMMUNICATIONS INDUSTRY: AN HISTORICAL PERSPECTIVE	
Chapter 1: THE THEORY AND PRACTICE OF MIXED ENTERPRISES	
1. Theoretical Literature	6
(a) Abstract organization	6
(b) Public-private sector organizations	9
(c) Mixed enterprise	13
2. Recent Evolution of Mixed Enterprises in Canada	19
3. Official Rationale for Telesat Canada	25
(a) Niagara Television Limited and Power Corporation of Canada proposal for a National Television Network with distribution by communications satellite, partially prepared by RCA Victor Limited	26
(b) Trans-Canada Telephone System and CN/CP Telecommunications counter-proposal for a joint venture or <i>consortiums' consortium</i>	29
(c) Privy Council Office study on Canada's upper atmosphere and space program, prepared by the Science Secretariat	31
(d) Department of Transport study on satellite communications prepared by the Northern Electric and Hughes Aircraft Companies	32
(e) Science Council of Canada recommendations for a central space agency	33
(f) Federal government white paper on satellite communications policy released by the Department of Industry	34
(g) Trans-Canada Telephone System and CN/CP Telecommunications recommendations for	

cont'd

Item	Page Number
restricted satellite communications operations or role of <i>carriers' carrier</i>	36
(h) Science Council of Canada guidelines for Canadian research and development or <i>major prototype program</i>	38
4. Central Hypothesis	39
Chapter 2: PRE-SATELLITE STRUCTURE	
1. Instruments of Constitutional Jurisdiction	41
(a) Major technological developments	42
(b) Definition of the policy field	45
(c) Chosen instrument(s)	52
2. Organizational Control Mechanisms	55
(a) Rule of law	55
(i) legal principles and precedents	55
(ii) market segmentation arrangements	58
(b) Operating principles	62
(c) Common carrier classification	70
3. Central Hypothesis	73
PART II	
TELESAT CANADA AS A COMPOSITE ENTERPRISE: A PRELIMINARY EVALUATION	
Chapter 3: TELESAT CANADA - SECTORAL NICHE	
1. 1962-78 Reorganization of Federal Entities	75
(a) Parliamentary committee(s)	78
(b) Central agencies	78
(c) Communications department	80
(d) International crown carrier	81
(e) Broadcasting company	85
(f) Regulatory commission(s)	86
2. Proper Role(s)	93
(a) Common carrier	93
(b) Carrier's carrier	98
(c) Carriers' carrier	100
3. Summary	101

cont'd

Item	Page Number
Chapter 4: TELESAT CANADA - MODAL OPTIONS	
1. Pre-proclamation Statements	104
2. Enabling Act	111
(a) Parliamentary prerogatives	112
(b) Cabinet discretionary powers	116
(c) Summary	118
3. Capitalization	119
(a) Debt	121
(b) Preferred shares	123
(c) Common shares	125
Chapter 5: TELESAT CANADA - POLICY-MAKING CONTROL	
1. Actual Organization	131
(a) Financial Basis	131
(i) other income	132
(ii) earnings from operations	134
(b) Stock subscription formula	144
(c) Issue to the general public	150
(d) Summary	152
2. Central Hypothesis	154
(a) Majority ownership rights	154
(b) Other mechanisms	160
(i) personnel	160
(ii) reorganization	161
(iii) regulation	162
(iv) budgets	162
(c) Summary	163

PART III

TELESAT CANADA AS A CROWN ENTERPRISE:
A FURTHER ASSESSMENT

Chapter 6: TELESAT CANADA - GOAL DEVELOPMENT

1. Specific Interventions	166
---------------------------	-----

cont'd

Item	Page Number
(a) Regulatory provisions	167
(b) Special provisions	168
2. Communications Policy	174
(a) Societal goal(s)	175
(b) Output goal(s)	180
(c) System goal(s)	184
(i) profitability	185
(ii) growth	198
(d) Product goal(s)	207
(i) time delay	207
(ii) duplicate in-orbit spacecraft and reserved R.F. channels	209
(iii) interconnection distance	214
(e) Derived goal(s)	216
3. Summary	219

Chapter 7: TELESAT CANADA - EXPECTATION FORMATION

1. Kinds of Expectations	222
(a) Priorities	224
(i) communications policy field versus other sectors	225
(ii) satellite communications versus terrestrial technology	227
(iii) integrated system versus specialized one(s)	233
(iv) overview	234
(b) Technological opportunity	235
(i) an integrated system	238
(ii) specialized one(s)	240
(c) Cross-subsidization	242
(d) Re-distribution of traffic	246
(i) trans-oceanic versus trans-continental relay	248
(ii) trans-continental, one-way communications	249
(iii) trans-continental, two-way communications	249

cont'd

Item	Page Number
(e) Ownership of key facilities	253
(i) earth stations	253
(ii) satellite(s)	257
2. Summary	260
Chapter 8: TELESAT CANADA - CHOICES	
1. First Generation of Key Facilities	262
(a) RCA Victor Limited; TRW, Inc.; Spar Aerospace Products Ltd., <i>et al</i>	263
(b) Northern Electric Company Limited, Hughes Aircraft Company and General Dynamics Corporation	269
(c) Central agencies, communications department and crown enterprise	273
2. Replacement Spacecraft	281
(a) R&D policy adjustment and re-classification of spacecraft	282
(b) Advanced and unforecasted launches	289
(c) Planned replacement	296
3. Second Generation of Key Facilities	300
4. Summary	312
Chapter 9: TELESAT CANADA - ADMINISTRATIVE CONTROL	
1. Integration and Rationalization	317
(a) Integration	318
(b) Rationalization	325
(c) Summary	330
2. Definitive Arrangements	333
(a) Long-lines	335
(b) Local/inter-urban switched system(s)	347
(c) Summary	364
3. Alternate Rationale for the Transfer of Administrative Control	365

cont'd

Item

Page
Number

PART IV

TELESAT CANADA AND MIXED ENTERPRISES

CHAPTER 10: CONCLUSIONS AND RECOMMENDATIONS

1. Utility of the Theoretical Approaches	369
2. Central Hypothesis	372
3. 1964-78 Reorganization	374
4. Utility of the Mixed Enterprise Mode	376
5. Canadian Space Program	380

LIST OF EXHIBITS

Item		Page Number
1	Public-Private Sector Organizations	10
2	Public-Private Sector Organizations	11
3	Public-Private Sector Organizations	15
4	Existing Mixed Enterprises	21
5	Status of Selected Chosen Instruments	54
6	Satellite Communications Stakes	34
7	Pre-proclamation Proposals for the Distribution of Telesat Common Shares (per cent)	120
8	Telesat Canada Service Agreements (1973-81)	135
9	Cumulative Losses Accrued by Telesat Canada	140
10	Selected Financial Data on Telesat Canada	141
11	Proposed and Actual Distribution of Telesat Common Shares	146
12	Public Versus Private Sector Ownership (6,000,001 shares)	156
13	Telephone Versus Telegraph Consortium Ownership (3,000,000 shares)	157
14	Bell System Proposals in 1959 and 1966	264

INTRODUCTION

In the late 1960s, the federal government began to organize a variety of mixed enterprises. The peculiar features of these interventions in the marketplace were two-fold. Special charters were used instead of the general laws of incorporation. The mixed enterprise mode had not been considered a proper public policy response for close to thirty years. One of the federal interventions took place in the communications policy field which many people believe is a key sector that should be in the vanguard of Canadian economic development. It induced the domestic adoption of a major technological development - satellite communications. It involved the incorporation of an unusually complex organization - Telesat Canada.

At an elementary level, the mixed enterprise mode implies a sharing of direct control over the decision-making process and a blending of value(s) which form the premise(s) for certain choices. A tentative definition of the central hypothesis which guided the preparation of this dissertation is as follows. There is a low probability that the principals of the organization under review will be able to permanently equate their control and to reliably reach a consensus on their respective responsibilities on behalf of the general public. The presumption is that the federal Cabinet, approved telecommunications common carriers and Telesat management will seek to have their national, regional and/or special interests touted as the public one.

In other words, a mixed enterprise may well emerge in form but not in substance. The conundrum which the parties listed above must confront is

closely connected with planning on a national basis or in the vernacular of the telecommunications sector - productive system planning. It is a function of the capacity and will to control research and development, manufacturing, traffic operations, and the forum for co-ordination with investments or budgetary allocations, expertise, patent pools, ownership of key facilities, wayleave franchises and interconnection agreements.

The theoretical base for the dissertation is primarily drawn from selected works of Dahl and Lindblom on public-private sector control mechanisms, Musolf on mixed enterprises, Cyert and March on the decision-making process within enterprises, and Aharoni on investment choices. Conceptual work on the modes of government organization by Dahl and Lindblom, Hodgetts, Self, the Privy Council Office and others will be utilized. A related work on goal classification by Perrow will also be used.

The main sources of information were studies, journals, speeches, government documents, daily and weekly newspapers, and interviews. Factual material from the first five types was edited into an historical profile (1603-1979) of the communications policy field and an information retrieval system that is keyed to the leading organizations in that sector. These compilations provided a comprehensive and on-going survey so that the latest events could be reviewed and introduced before the final submission of the thesis.

Four tasks were completed during the fall of 1975 and winter of 1976. Drafts of the thesis outline were prepared. The theoretical literature was studied in order to extract chapter headings and compile a suitable

analytical framework. Four libraries were searched for documents. Interviews were conducted in the spring of 1976 then drafts were prepared of the historical chapters which later became a background paper. The interviews confirmed which documents were the main ones and which studies were available to the general public. They left the strong impression that considerable research must be undertaken and a draft of the entire case study finished in order to gain enough expertise to secure adequate interview time with senior personnel.

In the summer and fall of 1978, a second set of interviews was conducted. Their main purpose was to test the validity of various findings, to evaluate the interpretation of historical facts and to check that significant ones had not been overlooked. Confidences are protected by the entry techniques, commitments during interviews and absence of direct references. Whenever a fact from an interview was crucial to the arguments presented in the thesis, validity was gauged at that time using the past or present position of the individual. If suspect, it was only woven into the narrative after verification by two other sources.

A detailed examination of the standing committee minutes in the fall of 1978 prompted a major re-write of the thesis. These minutes became the primary source of evidence in many instances for three reasons. The testimony was recorded with the full knowledge and voluntary acquiescence of the witnesses. Although they did not testify under oath, the public nature of these proceedings and the written record tended to have the same kind of

effect. In order to assist the committee members, a variety of experts were very careful with their simplifications of a host of complex issues.

Part I places the organization of Telesat Canada and the domestic adoption of satellite communications into an historical perspective. In so doing, the definition of the central hypothesis will be refined and various criteria for the determination of its validity will be postulated. The first chapter will present the theoretical approaches and an overview of the case study. The second chapter will record some of the traditional ways and means of exercising control in the communications industry.

Part II presents a preliminary evaluation of the central hypothesis and attaches the label of crown enterprise to Telesat Canada. The third chapter will outline the sectoral niche forged for Telesat Canada excluding provision for a single role. The fourth chapter will detail the bevy of modal options which were authorized along with the proclamation of the Telesat Canada Act of 1968-69. The fifth chapter will illustrate how the federal Cabinet retained a *de jure* policy-making control over the Telesat board of directors. It will be argued that the federal Cabinet is the only party, forum for co-ordination and managerial body which can command more votes than anyone else and thereby claim majority ownership rights.

Part III traces the conversion of the crown enterprise into an associate company of an unincorporated consortium. The sixth chapter will highlight the sectoral and organizational goals that were developed on behalf of or by the federal Cabinet, approved telecommunications common carriers or Telesat management. The seventh chapter will elaborate on the kinds of expectations that have been formed by various parties. The

eighth chapter will present a different satellite classification system than the Telesat ones to date in order to more clearly illustrate what each party won or lost with every contract award. It will be argued that cabinet approval on two separate occasions of a membership agreement permitted the transfer of *de jure* administrative control from that managerial body to certain approved telecommunications common carriers.

Part IV presents a compilation of the main findings in this case study. The ninth chapter will highlight the circumstantial and documentary evidence about the transfer of *de facto* policy-making and administrative control over Telesat Canada which is presently in progress. The tenth chapter will present a summary assessment of the utility of the theoretical approaches and the final evaluation of the validity of the central hypothesis. It will also record a number of conclusions, observations, criticisms, predictions and recommendations about the 1964-78 reorganization, the utility of the mixed enterprise mode and the Canadian space program.

Three questions guided the research for and the preparation of this case study. Why did the federal Cabinet seek to reorganize the Canadian communications policy field between 1964 and 1978? Why did the federal Cabinet accept the Privy Council Office's recommendation that a mixed enterprise should be used for the domestic adoption of satellite communications and how has the mixed enterprise evolved in practice? Why were three Anik satellites with twelve radio frequency channels purchased even though the federal Cabinet probably had been advised on one or more occasions by the Privy Council Office that only one spacecraft with three radio frequency channels could be operated on a commercial basis?

PART I

PUBLIC-PRIVATE SECTOR RELATIONSHIPS
IN THE COMMUNICATIONS INDUSTRY:
AN HISTORICAL PERSPECTIVE

CHAPTER 1: THE THEORY AND PRACTICE OF MIXED ENTERPRISES

Chapter One sets out to accomplish two tasks. The central hypothesis of this dissertation will be documented and justified. A theoretical framework for a determination of its validity will be introduced. The chapter is divided into the following sections: theoretical literature on mixed enterprises, recent evolution of federal ones, and official rationale for the incorporation of Telesat Canada. In these sections, it will be shown that the issues, dilemmas or problems encountered in the theory have operational counter-parts in the particular case study under review.

1. Theoretical Literature

Even though the literature on complex organizations is myriad, treatises on mixed enterprises are scarce. In order to compensate for this sparseness, works have been selected during the preparation of this dissertation that present various levels of aggregation and cover the fields of political science, economics, sociology, organizational behaviour and public or business administration. The following segments will present a summary of the most pertinent findings: abstract organization, public-private sector organizations and mixed enterprise.

(a) Abstract organization

Given that any organization is a: "... form of social grouping

which is a more or less deliberate or purposive manner for the attainment of a goal,"¹ there are two basic features. One definition of these means and ends can be obtained from the Dahl and Lindblom typology. *Economizing*² is their super-ordinate goal or end since it is directly related to the survival or growth of every organization. It may be defined as the process of rational calculation or prediction and control, particularly for the overall sub-goals of stabilization and resource development. On the one hand, stability involves the protection of constitutional authority and capital investments.³ On the other hand, resource development involves new organizations which can require a different division of powers and expenditures for superior plant and equipment that will augment or replace existing ones.⁴ Under normal conditions, a balance is carefully maintained between these two aspects.

Incrementalism is their all-pervasive instrument, means or

¹N.P. Mouzelis, Organisation and Bureaucracy: An Analysis of Modern Theories (Chicago, Ill.: Aldine, 1967), p. 4.

²R.A. Dahl and C.E. Lindblom, Politics, Economics, and Welfare: Planning and Politico-Economic Systems Resolved Into Basic Social Processes (New York: Harper & Row, 1953; Harper Torchbooks, 1963), pp. 129-168.

³"The 1977 ranking of Canada's largest companies," Financial Post 300 (Summer 1977): 20-21. For example, The Bell Telephone Company of Canada (Bell Canada) alone had fixed assets in 1977 of \$6,657,000,000.

⁴R. Steklas, "Science & Technology: Keeping in touch with glass," Financial Post, 22 October 1977, sec. 1, p. 11. One of the latest innovations is fibre optics for underground cables. These small, light-weight and non-conducting lines require fewer repeater amplifiers and have between 10 and 100 times as much capacity as radio relay circuits on microwave towers or geostationary satellites.

decision-making process. It may be defined as a technique that:¹

Takes reality as one alternative and compares the probable gains and losses of closely related alternatives by making relatively small adjustments in existing reality, or making larger adjustments about whose consequences approximately as much is known as about the consequences of existing reality, or both.

The reality mentioned in this quotation can be delineated by a web of shared and vested interests in the form of principles, historical precedents, agreements or understandings, and edicts.

Although the Dahl and Lindblom typology is one of the finest aggregate theories published to date, it is almost thirty years old and contains an important flaw. In a later work,² Lindblom sought to accommodate unexpected or revolutionary change which contributes to the diversity within any given organization or society. Consequently, the concept of *disjointed incrementalism*³ will be used to permit that kind of input. The decision-making process of the hypothetical organization emerges as a continuous, dynamic and social one which produces cyclical, episodic and random choices.

¹Dahl and Lindblom, Politics, Economics, and Welfare, p. 82.

²D. Braybrooke and C.E. Lindblom, A Strategy of Decision: Policy Evaluation as a Social Process, Free Press Paperback ed. (New York: Macmillan, 1963), pp. 104-110. Time constraints prevented the use of his latest work.

³A. Etzioni, The Active Society: Theory of Societal and Political Processes, Free Press Paperback ed. (New York: Macmillan, 1968), pp. 270-273.

(b) Public-private sector organizations

Until now, organizations have been treated as relatively homogenous. No definite distinction has been drawn between the two kinds of ownership and principal types of organization that dominate modern industrial societies: government entities and private enterprise. Some theorists would laud that omission and argue on the grounds of ideology¹ or fiscal dependency² that a meaningful separation between the public and private sectors can no longer be made. Others disagree!

Dahl and Lindblom propose an organizational mode continuum (Exhibit 1) which consists of eight main categories. The keynote feature that distinguishes each type is their degree of entrepreneurial freedom³ and the locus of majority ownership rights. This broad classification is of only limited value since a specific sector of the Canadian economy and a particular organization are the focal point of this case study. In Exhibit 2, the continuum has been re-designed using Hodgetts typology⁴ and a recent study⁵

¹R. Miliband, The State in Capitalist Society, reprint ed. (London: Weidenfeld & Nicholson, 1969; Quartet Books, 1973), p. 6.

²J. O'Connor, The Fiscal Crisis of the State (New York: St. Martin's Press, 1973), pp. 249-256.

³A.H. Cole, "Business Enterprise in its Social Setting," quoted in I.A. Litvak and C.J. Maule, "Branch Plant Entrepreneurship," Business Quarterly 37 (Spring): 45.

⁴J.E. Hodgetts, The Canadian Public Service: A Physiology of Government 1867-1970 (Toronto: University of Toronto Press, 1973), pp. 138-156.

⁵Canada, Privy Council Office, Crown Corporations: Direction,

EXHIBIT 1
PUBLIC-PRIVATE SECTOR ORGANIZATIONS

- A Government department
- B Public corporation subject to ministerial control
- C Regulated public utilities
- D Joint government-private firm
- E Regulated and/or subsidized corporation
- F Corporate subsidiary
- G Corporate department
- H Proprietor

SOURCE: R.A. Dahl and C.E. Lindblom, Politics, Economics, and Welfare (New York: Harper & Row, 1953; Harper Torchbooks, 1963), p. 10.

EXHIBIT 2

PUBLIC-PRIVATE SECTOR ORGANIZATIONS

F
E
D
E
R
A
L P
R
I
V
A
T
EP
R
O
V
I
N
C
I
A
L

- A Central agencies
 B Government department
 C Crown corporation
 department
 agency
 proprietary
 D Mixed enterprise
 E Regulated and/or subsidized
 corporation
 F Corporate subsidiary
 G Corporate department
 H Proprietor

SOURCES: J.E. Hodgetts, The Canadian Public Service (Toronto: University of Toronto Press, 1973), pp. 138-156.

Canada, Privy Council Office, Crown Corporations (Ottawa: Department of Supply and Services, 1977), pp. 82-83.

R.I. Cheffins, The Constitutional Process in Canada (Toronto: McGraw-Hill, 1969), pp. v-19.

G.B. Doern, "The Development of Policy Organizations in the Executive Arena," in The Structures of Policy-Making in Canada, eds. G.B. Doern and P. Aucoin (Toronto: Macmillan, 1971), pp. 39-41.

by the Privy Council Office in conjunction with certain research findings about the Canadian constitution¹ and federal policy-making structures.²

What makes the three kinds of crown corporation different from each other? The departmental corporation is organized to perform a specific and distinctive function which is facilitated by the ability to own property and be subject to litigation in its own name. The agency corporation is involved in trading, lending or procurement. Since this mode still has access to public appropriations on a regular basis, its contractual commitments, operating budgets and capital expenditures are monitored by the central agencies.³ The proprietary corporation sells goods and/or services. A belief in the principle of managerial independence is strongest with this type. Until recently, two provisions were the mechanisms which could be used to clearly differentiate crown corporations from privately-owned subsidiaries. The first one was a periodic audit by the Auditor General alone or in tandem with another organization.⁴ The second one was conditional authorization to

Control and Accountability (Ottawa: Department of Supply and Services, 1977), pp. 39, 82-83.

¹R.I. Cheffins, The Constitutional Process in Canada (Toronto: McGraw-Hill, 1969), pp. v-19.

²G.B. Doern, "The Development of Policy Organizations in the Executive Arena," in The Structures of Policy-Making in Canada, eds. G.B. Doern and P. Aucoin (Toronto: Macmillan, 1971), pp. 39-41.

³Ibid, p. 41. These agencies are: the Prime Minister's Office (PMO), Privy Council Office (PCO), Department of Justice, Department of Finance and Treasury Board (TB).

⁴Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Minutes of Proceedings and Evidence, No. 41

expropriate private property.

The revised conceptual framework illustrates that there can be a variety of organizations - federal and provincial governments plus corporations - with vested and/or shared interests relative to the issue of stability versus resource development. In the event that one or more of these governing bodies seek to incorporate a mixed enterprise in order to adopt a new technology in a sector where there are existing public and/or private operations, two other things occur. The above issue becomes the central one and the above instrument becomes the focal point of any conflict and uncertainty.

(c) Mixed enterprise

What conditions might prompt the mixed enterprise form of public policy response and intervention? Based upon a comprehensive survey that spanned highly industrialized and less developed countries, Musolf observed three main prerequisites: private firms in financial difficulties, private firms unable to raise venture capital and/or a need to deter foreign competition.¹ Using these findings, he concluded that each intervention resulted in: "... participation - in the form of capital, or appointments

(Ottawa: Queen's Printer, 1969), p. 2145. The passage of the Auditor General Act of 1977 by Parliament and Permanent Orders of Reference by the Commons Standing Committee on Public Accounts has brought many of the crown corporations and subsidiaries previously declared otherwise under the pervuew of that parliamentary body.

¹L.D. Musolf, Mixed Enterprise: A Developmental Perspective (Lexington, Mass.: Heath, 1972), p. 45.

to the board of directors, or both -..."¹

Since his typology includes three varieties of this mode, Exhibit 3 illustrates how the continuum was modified to include: joint, composite and mixed enterprises. The following definitions point out the features which can be used to identify each one:²

Where participation is entirely from either the public or private sector, the term *joint* enterprise is employed. A *composite* enterprise is one in which there is intersectoral linkages across national boundary lines. *Mixed* enterprise is reserved for a venture which is both domestic and intersectoral....

Composite enterprise: Foreign private-Domestic public - Domestic private.

Mixed enterprise: Domestic public-Domestic private.

By definition, there must be a sharing of administrative control within a mixed enterprise. By inference, there must be a compromise between the policy aspirations of its principals. Therefore, the utility of that organizational mode seems to stem from the fact that a single entity is:³

¹Musolf, Mixed Enterprise, p. 3. The term mixed enterprise will be used at this stage of the analysis for reasons of simplification. Strictly speaking, the term composite enterprise should be employed since two coalition members have foreign linkages.

²Ibid.

³A. Shonfield, Modern Capitalism: The Changing Balance of Public and Private Power (London: Oxford University Press, 1965), p. 190.

EXHIBIT 3

PUBLIC-PRIVATE SECTOR ORGANIZATIONS

FEDERAL

PROVINCIAL

DOMESTIC

INTERNATIONAL

- A Central agencies
- B Government department
- C Crown corporation
department
agency
proprietary
- D Joint
Composite enterprise
Mixed
- E Regulated and/or subsidized
corporation
- F Corporate subsidiary
- G Corporate department
- H Proprietor

SOURCES: J.E. Hodgetts, The Canadian Public Service (Toronto: University of Toronto Press, 1973), pp. 138-156.

Canada, Privy Council Office, Crown Corporations (Ottawa: Department of Supply and Services, 1977), pp.82-83.

R.I. Cheffins, The Constitutional Process in Canada (Toronto: McGraw-Hill, 1969), pp. v-19.

G.B. Doern, "The Development of Policy Organizations in the Executive Arena," in The Structures of Policy-Making in Canada, eds. G.B. Doern and P. Aucoin (Toronto: Macmillan, 1971), pp. 39-41.

L.D. Musolf, Mixed Enterprise (Toronto: Heath, 1972), p. 3.

Being constantly subject to the tension between the objectives of public policy on the one hand, and the need to satisfy shareholders that their capital is being used on projects which will show a good return on the other.

It is these premises that will be applied to the central issue of resource development versus stability. The longevity¹ of any mixed enterprise as a relatively autonomous organization pivots on the ability of its directors and management to strike a productive balance.² In other words, it is:³

An attempt to consolidate in a single corporate entity as many as possible of the managerial, production, research, economic and other resources of both the public and private sectors of the economy while at the same time avoiding to the greatest extent the disadvantages inherent in each.

The definitions and descriptions introduced so far imply that the decision-making process functions on two levels. The inter-organizational one involves majority ownership of the instrument or mode and the legal right to exercise policy-making control over outputs from the board of directors. The intra-organizational one involves the ability to exercise administrative control over operations through the approval of capital expenditures.

¹ Musolf, Mixed Enterprise, p. 21.

² P.F. Drucker, Management: Tasks, Responsibilities and Practices (New York: Harper & Row, 1973, 1974), p. 45. In this case study, productivity will be defined as a combination of efficiency and effectiveness. The former involves *doing things right* while the latter involves *doing the right things*.

³ D.A. Golden, "Anik - Experience With a Domestic Communications Satellite Serving the Public," Speech delivered by the president of Telesat Canada to the American Institute of Aeronautics and Astronautics, Washington, D.C., 29 January 1974, (Brochure.)

The Dahl and Lindblom typology is particularly apt for an analysis of the first level. The Cyert and March typology¹ is a compatible one which is particularly suited to the second level on two accounts. It concentrates on the quasi-resolution of conflict, uncertainty avoidance, problemistic search and organizational learning as phases of an internal decision-making process. More importantly, it is based upon the premise that there is a:²

Need to supplement the study of market factors with an examination of the internal operation of the firm - to study the effects of organizational structure and conventional practice on the development of goals, the formation of expectations, and the execution of choices.

Which goals and expectations were promulgated by a particular party(s)? Which ones were implemented or displaced and on behalf of whom? Why was a particular choice made? These queries will be used as the main framework for an analysis of the Telesat operations. Even though they are closely related, each factor will be examined separately for the exact mechanisms and premises which one or more parties used in any attempts to exercise administrative control over the decision-making process. Since Aharoni argued that a broad awareness of environmental factors³ is also necessary, that weakness will be counteracted by the historical and structural findings in the next chapter.

¹R.M. Cyert and J.G. March, The Behavioral Theory of the Firm (Englewood Cliffs, N.J.: Prentice-Hall, 1963), p. 126.

²Ibid, p. 1.

³Y. Aharoni, The Foreign Investment Decision Process (Boston, Mass.: Harvard University, Division of Research, Graduate School of Business Administration, 1966), p. 29.

Two other typologies will be used to further strengthen both parts of the theoretical framework. A Gulick treatise suggests that there are four somewhat exclusive principles that can be used to design or evaluate organizations: "... the purpose served, the processes employed, the persons or things dealt with, and the area covered."¹ (see Part II for further details). A Perrow treatise provides a method for the classification of goals into: societal, output, system, product and derived ones² (see Supplementary Exhibit A1 for detailed descriptions).

The theoretical framework as presented in this chapter utilizes works with different perspectives and levels of aggregation. It does so in order to cope with the bi-level and dual nature of the central issue of resource development versus stability. Will the proposed mixed enterprise be organized as a change agent or as a guardian of the constitutional and commercial status quo? Will its capital expenditures yield productive technological advances or something else? By inference, there are also two kinds of principals connected with the central hypothesis. *Coalition members*³ may be defined as any party which has a direct interest in the election or appointment of directors. *Stakeholders*⁴ may be defined as any

¹L. Gulick, "Notes on the Theory of Organisation," Papers on the Science of Administration, eds. L. Gulick and L.F. Urwick, quoted in P. Self, Administrative Theories and Politics: An Inquiry Into the Structure and Processes of Modern Government (London: Allen & Unwin, 1972; Toronto: University of Toronto Press, 1973), p. 55.

²C. Perrow, Organizational Analysis: A Sociological View, Behavioral Science in Industry Series, V.H. Vroom, ed. (Belmont, Calif.: Wadsworth, 1970), pp. 135-136.

³Cyert and March, Behavioral Theory of the Firm, pp. 27, 29-31, 39.

⁴G.F. Wieland and R.A. Ullrich, Organizations: Behavior, Design, and Change (Homewood, Ill.: Irwin, 1976), p. 109.

party which has a vested interest in the approval of capital expenditures, the allocation of annual budgets or procurement contracts and/or their potential effects on satellite communications development (see Glossary).

2. Recent Evolution of Mixed Enterprises in Canada

The earliest example that was encountered in the research for this thesis was the Bank of Canada. In February of 1934, the Minister of Finance introduced Bill 19 which sought to authorize the incorporation of a central bank under a Dominion charter which the Prime Minister would later describe as a *privately-owned; public trust* to regulate credit and currency.¹ By the summer of 1936, the federal government found it expedient to introduce a resolution which would permit that governing body to acquire a majority of the capital stock and voting control over the board of directors.² Two years later, the Minister of Finance introduced Bill 160 that would enable the federal government to acquire all of the shares then held by the general public.³ Thus ended an early experiment with the use of a mixed enterprise as a public policy instrument to strengthen federal authority over monetary policy and to foster economic

¹Canada, Parliament, Parliamentary Debates (Commons), 5th session, 17th parliament (1934): 823-824. The Dominion charter corresponds to the pre-1867 Royal one. For a few years after Confederation, provincial ones restricted corporate operations to the territory of that governing body.

²Idem, 1st session, 18th parliament (1936): 3318.

³Idem, 3rd session, 18th parliament (1938): 3708.

development and well-being.

When the Second World War broke out in 1939, the organizational mode chosen by the federal Cabinet to co-opt business expertise was the crown corporation. Even though these firms were set up at a hitherto unequalled rate,¹ there was no spill-over effect for the mode which seemed ideal for a joint public-private sector effort of such magnitude. Exhibit 4 illustrates that it was not until the 1960s that an appreciable change in policy occurred. The reversal would ultimately result in the incorporation of complex organizations in three sensitive areas:²

Panarctic Oils was the first mixed enterprise, created on December 12, 1967. Telesat came into existence on June 27, 1969 and CDC did not come on the scene until February 22, 1971.

Panarctic Oils Ltd. is a drilling operation that was organized by the federal government and major oil companies to promote exploration in the far North. Telesat Canada is a traffic operation that was organized by the federal and provincial governments as well as domestic and foreign telecommunications companies to set up a domestic satellite communication system. Canada Development Corporation is an investment holding company which was organized by the federal government and private investors, ostensibly to purchase firms that will aid Canadian economic growth.

¹Canada, Treasury Board Secretariat, Financial Administration Branch, "Government-Owned and Controlled Corporations," Tabled in the Public Accounts Committee hearing held on 17 May 1977, Ottawa, Ontario, (Mimeographed,) pp. 13, 26-7, 29-30. Telesat Canada is shown as an associate company of a holding company (Canadian National Railway Company).

²K.L. Zavitz, "Canada Development Corporation: The Relationship to Government: The Strategy of the Corporation," M.A. dissertation, Carleton University, 1977, pp. 14-5.

EXHIBIT 4
EXISTING MIXED ENTERPRISES.

Company	Incorporation Date	
Thousand Islands Bridge Authority		1934
Saint John Harbour Bridge Authority	April	1962
Blue Water Bridge Authority	May	1964
Panarctic Oils Ltd.	December	1967
Telesat Canada	June	1969
Canadian Arctic Producers Limited	April	1970
Canada Development Corporation	February	1971
Crane Cove Oyster Farm Ltd.	March	1971
Consolidated Computer Inc.	January	1972
Shong Way Shi Corporation Limited	April	1972
Association for the Export of Canadian Books	November	1972
Newfoundland and Labrador Development Corporation Limited	January	1973
Metropolitan Area Growth Investments Ltd.	March	1973
Fashion Canada	May	1973
POS Pilot Plant Corporation	December	1973
Abenaki Motel Ltd.	January	1974
Nanisivik Mines Limited	June	1974
Canada Book Design Committee Inc.	July	1974
Canarctic Shipping Company Limited	July	1975
Canadian Colour and Fashion Trend Service	October	1975
Mohawk St. Regis Lacrosse Ltd.	October	1975
La Société Inter-port du Québec	June	1976
Footwear and Leather Institute of Canada	July	1976
La Société du parc industriel et commercial aéroportuaire de Mirabel	November	1976

SOURCE: Canada, Treasury Board Secretariat, Financial Administration Branch, "Government-Owned and Controlled Corporations," Tabled in the Public Accounts Committee on 17 May 1977, Ottawa, Ontario, (Mimeographed,) pp. 13-14, 30.

What is the main source(s) of utility that can be inferred from existing mixed enterprises? What caused the resurrection of that mode? Three factors are likely determinants. The recommendations of the Glassco Commission had formed the basis for the passage of various statutes including the Government Organization Act of 1966.¹ This massive reorganization of the federal public service extended over a number of years but was conducted under the loose rubric of *let the managers, manage*. Late in 1957, a race into outer space began between the United States of America (USA) and the Union of Soviet Socialist Republic (USSR) which prompted an almost war-like research and development (r&d) effort.² The accompanying global surge in the growth of sectors (see Glossary) which rely upon advanced electronics contributed towards a rise in public expectations. In Canada, one guise of these demands for sustained or even improved economic performance was the call for an industrial strategy.³

At the same time, structural rigidities⁴ and international

¹ Hodgetts, Canadian Public Service, p. 280. The formal title was the Royal Commission on Government Organization.

² United States, Communications Satellite Corporation, "COMSAT Pocket Guide to: The Global Satellite System," (Brochure.)

³ A.W. Gillespie, "How do we continue to grow from here?" Speech delivered by the Minister of Industry, Trade & Commerce at the annual meeting of the Canadian Manufacturers' Association, Toronto, Ontario, 5 June 1973. In the late 1960s and early 1970s, the federal government attempted to garner an explicit consensus on a strategy for the entire Canadian economy. It was forced to re-trench towards a *coherent set of sector strategies* with only slightly more success.

⁴ Canada, Privy Council Office, Task Force on the Structure of Canadian Industry, Foreign Ownership and the Structure of Canadian Industry, Submitted in January of 1968 (Ottawa: Information Canada, 1971), pp. 355-362.

realignments¹ were undermining economic growth and ultimately the federal government's ability to exercise policy leverage predominantly through expenditures. Furthermore, the provincial governments were contributing to the decline in federal capabilities. The balance of constitutional power as originally proposed in 1867 whereby there would be a stronger central governing body than regional ones had been slowly yet surely reversed over the past one hundred years.² A series of federal-provincial agreements involving open-ended expenditures were outstripping the growth of federal tax revenues.³

More and more, provincial governments dominated fiscal policy through their collective expenditures.⁴ With each bond issue or turnover outside the country by every level of government and a bevy of large Canadian corporations, monetary policy became more and more susceptible to influence by foreign financial institutions on account of the proportion of the national debt held by non-residents. Consequently, the federal Cabinet was confronted with a dilemma. On the one hand, the general public still viewed the central governing body as primarily responsible for economic growth and employment. On the other hand, its ability to influence fiscal and monetary

¹R.J. Wonnacott, "Canada's Future in a World of Trade Blocs: A Proposal," *Canadian Public Policy* 1 (Winter 1975): 129-130.

²"Canada: Waiting for Trudeau," *Economist*, 19 November 1977, p. 69.

³Doern, "Development of Policy Organizations," in *Structures of Policy-Making*, eds. Doern and Aucoin, p. 53.

⁴J. Gray, "Can govt. control economy?" *Citizen*, Ottawa, 11 November 1977, sec. 1, p. 7. Since 1952, the proportion (60:40) of total expenditures by the federal and provincial governments has in effect reversed.

policies or to exercise leverage in the policy field under review (details in the next chapter) was undergoing a sharp decline. The domestic adoption of satellite communications represented an opportunity to simultaneously deal with both problems.

One result of these pressures for productive economic management was a series of increasingly severe austerity programs.¹ Another result was an extensive search by the central agencies and other federal entities for novel instruments and new techniques² that are flexible, that require limited funds or rely upon their own earnings³ and that utilize the co-operation and participation of active, articulate and powerful interest groups. Given that mixed enterprises can readily be placed outside existing statutory constraints for crown companies (e.g. Canada Business Corporations Act, Canada Companies Act, and Financial Administration Act), each instrument could be designed on a case-by-case basis to meet these prerequisites. Indeed, functional specificity is about the only common denominator which was discerned in that mélange of mixed enterprises listed in Exhibit 4. In the event that conditions or priorities changed, this kind of mode could be reorganized using a variety of subtle methods to effect different adjustments.

¹Canada, Parliament, Parliamentary Debates (Senate), 1st session, 28th parliament (1968-69): 1685.

²V.S. Wilson, "The Role of Royal Commissions and Task Forces," in The Structures of Policy-Making in Canada, eds. G.B. Doern and P. Aucoin (Toronto: Macmillan, 1971), pp. 115, 118. Task forces and green papers replaced royal commissions and white papers.

³Canada, Privy Council Office, Crown Corporations, p. 42.

3. Official Rationale for Telesat Canada

Eight reports had a significant impact on the design of a mixed enterprise for the domestic adoption of satellite communications. These documents include:

Niagara Television Limited and Power Corporation of Canada proposal for a national television network with distribution by communications satellite, partially prepared by RCA Victor Limited;

Trans-Canada Telephone System and CN/CP Telecommunications counter-proposal for a joint satellite venture or *consortiums' consortium*;

Privy Council Office study on Canada's upper atmosphere and space program, prepared by the Science Secretariat;

Department of Transport study on satellite communications prepared by the Northern Electric and Hughes Aircraft Companies;

Science Council of Canada recommendations for a central space agency;

Federal government white paper on satellite communications policy released by the Department of Industry;

Trans-Canada Telephone System and CN/CP Telecommunications recommendations for restricted satellite communications operations or role of *carriers' carrier*; and

Science Council of Canada guidelines for Canadian research and development or *prototype major program*.

(a) Niagara Television Limited and Power Corporation of Canada proposal for a National Television Network with distribution by communications satellite, partially prepared by RCA Victor Limited

Late in 1966, a provocative proposal was made by a subsidiary¹ of a major newspaper chain and an investment holding company² to the Board of Broadcast Governors³ at a public hearing. It was nothing short of revolutionary in its potential effect on existing divisions of constitutional powers (details in the next chapter) and on the concentration of corporate power⁴ in the Canadian communications policy field. Under its provisions,⁵ two firms would be organized: a headquarters unit and a subsidiary in the guise of a mixed enterprise.

NTV would produce programmes and manage a national television network

¹Canada, Parliament, Parliamentary Debates (Commons), 1st session, 28th parliament (1968-69): 9837. This broadcaster was allegedly a subsidiary of Southam Press Limited.

²P.C. Newman, The Canadian Establishment (Toronto: McClelland & Stewart, 1975), p. 75. The Power Corporation of Canada was organized in 1925 by a Montreal investment house (Nesbitt, Thomson and Company).

³Hodgetts, Canadian Public Service, p. 145. In 1968, that board was reorganized as the Canadian Radio and Television Commission (CRTC) and eight years later as the Canadian Radio-television and Telecommunications Commission (CRTC).

⁴J.R. Finlay, "Will report ever emerge on the role of big business? The riddle of the crippled royal commission," Globe and Mail, 29 April 1978, sec. 1, p. 10. A similar manoeuvre, i.e. an attempt by Power Corporation to take over Argus Corporation through stock market purchases, prompted the appointment of the Bryce Commission on 22 April 1975.

⁵Niagara Television Limited and Power Corporation of Canada Limited, "Proposal for a Canadian TV Network and a Domestic Space Satellite

consisting of sixty-five affiliates. Approximately seventy per cent of the common shares issued by this corporation would be held by the general public. Since the ownership of these shares would be widely dispersed, the election of its directors would probably be guided by the underwriters.¹ Its chief executive officer² would be the Niagara Television president who would handle the initial selection of senior personnel. CANSAT would provide distribution facilities using a single satellite in orbit. This transponder (see Glossary) would relay television programmes but also might handle commercial message, facsimile and other signals. Sixty per cent of the common shares issued by this mixed enterprise would be held by the federal government, common carrier (see Glossary) and other broadcasters with the subscription formula determined by that governing body.

In this way, satellite communications technology could be adopted in the Dominion of Canada (Canada) for several reasons. The duopoly of the telegraph³ and telephone⁴ consortia formed by various common carriers in the early 1930s would be eliminated (details in the next segment).

Distribution System," Submitted at a hearing of the Board of Broadcast Governors, Ottawa, Ontario, 25 October 1966, (Brief.) RCA Victor Limited of Montreal, a subsidiary of RCA Corporation of New York, was commissioned to prepare the technical part.

¹Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Minutes of Proceedings and Evidence, No. 38 (Ottawa: Queen's Printer, 1969), p. 2020.

²Idem, Proceeding No. 41, p. 2169. The Minister of Communications submitted the argument to this standing committee that cabinet approval of the annual elections of the Telesat president was necessary since the objectives of any organization can be changed by that particular executive.

³E.A. Weir, The Struggle for National Broadcasting in Canada (Toronto: McClelland & Stewart, 1965), pp. 158-169.

⁴S. Bonneville, "The Trans-Canada Telephone System," Bell Telephone

Broadcasters would finally achieve¹ ownership of the circuits which link radio and television stations into a network.² The surplus profits from advertisements would pay for the satellite circuits and any excess revenue could be used to develop more advanced hardware and operating techniques.

One observation and a deduction can be made at this time. The concept of a mixed enterprise as the appropriate mode was introduced on the grounds that voting control should not reside with any single person or within any particular institution. No further explanation was offered for the selection of that form in spite of the fact that its structural substance - as detailed in their submission - was at variance with the presumption of equal sharing amongst the participants. The threat of a solitary television network³ using all of the existing vacant frequencies delivered by two companies whose political and financial clout was recognized throughout the country achieved the following results. By design or chance, the broadcasting community and the domestic telegraph consortium (see Appendices A and B) were allied and silenced.⁴ Co-ordinately, the federal

Quarterly 11 (January 1932): 228.

¹G.L. Archer, Big Business and Radio (New York: Arno Press and New York Times, 1971), p. 67.

²Canada, Department of Communications, Analysis of Relationships Between the Functions of the Common-Carriers and Those Engaged in Broadcasting, Telecommission Study 1(d) (Ottawa: Information Canada, 1971), pp. 6, 75.

³Idem, Parliament, Parliamentary Debates (Commons), 2nd session, 27th parliament (1967-68): 6244. A dream shared by some politicians and most broadcasters in the private sector is the removal of the Canadian Broadcasting Corporation (CBC) which relies upon advertising revenue and annual subsidies that were about \$170,000,000 at that time.

⁴Idem, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Minutes of Proceedings and Evidence, No. 42 (Ottawa:

government was strengthened¹ for any pending confrontations or manoeuvres. The debate was focused on the questions of ownership proportions and eligible parties rather than on the issue of a crown corporation versus a privately-owned one.

(b) Trans-Canada Telephone System and CN/CP Telecommunications
counter-proposal for a joint venture or consortiums' consortium

By late spring of the next year, a written reaction was forthcoming when a brief was submitted to the transport minister instead of the regulatory body responsible for telecommunications.² This document was prepared by two consortia which are unincorporated forums for system planning and revenue sharing but which are only partially and indirectly regulated by either the U.S., federal and/or provincial governments.

The continental telephone consortium is known as the Trans-Canada Telephone System (TCTS). It presently consists³ of the holding companies and common carriers listed in Supplementary Exhibit B1. It generalizes in

Queen's Printer, 1969), p. 2205. Testimony from the CNR, CPR and Canadian Association of Broadcasters was apparently neither sought nor received. The Association did submit a brief to this committee on the last day of hearings which expressed the hope that the next satellite would have more R.F. channels.

¹J. Fayerweather, Foreign Investment in Canada: Prospects for National Policy (Toronto: Oxford University Press, 1974), p. 79.

²Trans-Canada Telephone System and CN/CP Telecommunications, "Canadian Communications Satellite System," Submitted to the Minister of Transport, Ottawa, Ontario, May 1967, (Brief.) At that time, it was the Canadian Transport Commission.

³Canada, Department of Communications, History of Regulation and Current Regulatory Setting, Telecommission Study 1(b) (Ottawa: Information Canada, 1971), Appendix A, pp. 11-68.

local, regional and inter-regional switched distribution of signals. The domestic telegraph consortium is known as Canadian National - Canadian Pacific Telecommunications (CN/CP Telecommunications).¹ It consists of a department of a federal crown corporation (Canadian National Railway Company) and a subsidiary of a diversified resource and transportation company (Canadian Pacific Ltd.).² It is being forced by circumstances to abandon the provision of telegraph service to the general public but will retain a portion of these facilities for train dispatchment.³ In the past, it has been able to specialize in the provision of *private* circuits⁴ for large organizations in various metropolitan centres across the country.

Their proposal recommended that these common carriers should organize a joint venture on the grounds that the new facilities represented only an incremental development vis-à-vis radio relay by microwave (see Glossary) towers and that traffic operations were their traditional responsibility. Their reaction was more than a blatant ploy to preserve the status quo and should have been as provocative as the original proposal. It temporarily

¹Canada, Department of Communications, Study of Institutional Structure of Telephone Operating Industries, Telecommission Study 2(i) (Ottawa: Information Canada, 1971), pp. 13-21. Telegram volumes peaked in 1952.

²R. Chodos, The CPR: A Century of Corporate Welfare (Toronto: Lewis & Samuel, 1973), pp. 154-155.

³R.L. Thompson, Wiring a Continent: The History of The Telegraph Industry in the United States 1832-1866 (Princeton, N.J.: Princeton University Press, 1947), pp. 203-212.

⁴Canada, Department of Communications, The Canadian Telecommunications Industry: Structure and Regulation, Prepared by W.D. Gainer, Telecommission Study 2(a) (Ottawa: Information Canada, 1971), p. 4.

undermined their credibility and acknowledged that until the enabling bill was proclaimed bargaining must be predominantly conducted in public rather than the traditional and preferred *in camera*¹ sessions. Was this situation induced to draw the common carriers out into the open? One plausible explanation is that the scheme for the original proposal was actually conceived in the Prime Minister's Office.²

(c) Privy Council Office study on Canada's upper atmosphere and space program, prepared by the Science Secretariat

In the meantime, the federal government was forging ahead with three studies under the auspices of the Privy Council Office (PCO). At the beginning of 1967, the Science Secretariat completed the first report³

¹Black's Law Dictionary, Revised 4th ed. (1968), s.v. "In Camera." Two extremes are usually displayed in the communications policy field. The prelude to most broadcasting choices is public hearings. System planning and revenue sharing choices are usually made behind closed doors, except for the discretionary submission and approval of selected tariff schedules or changes.

²Canada, Parliament, Parliamentary Debates (Commons), 2nd session, 28th parliament (1969-70): 2882. Four pieces of circumstantial evidence support this supposition. Firstly, the original proposal was well-packaged yet apparently not pursued with vigor. Secondly, a 1964 study which argued for a consolidation of federal communications capabilities had been prepared by three eminent lawyers: Pierre Trudeau, Marc Lalonde and Claude Frenette. The latter managed the office of the Minister of Forestry (Maurice Sauvé), was the legal counsellor for Power Corporation then became the president of the Québec Liberal Federation. Thirdly, the plans for the Liberal Party leadership candidacy of Pierre Trudeau were laid at a regular evening meeting in the offices of the Power Corporation early in 1969. Lastly, one parliamentarian stated in the House of Commons that between 1965 and 1971 that corporation received a total of \$151,000,000 in federal grants, etc.

³Idem, Privy Council Office, Science Secretariat, Upper Atmosphere

which recommended the establishment of a central space agency and the continuation of expenditures for further research into the upper atmosphere or ionosphere (see Glossary).

A sense of urgency was stressed on account of the need to protect Canadian access to geostationary orbits (see Glossary) between 75° and 115° west longitude which are scarce on an international basis.¹ The existence of a unique opportunity was also emphasized given the recent success of Canadian-built scientific satellites and the past problems with northern communications. When Alouette 1 sounded the topside of the ionosphere in advance of the American S-27, it catapulted a federal laboratory² into the vanguard of one aspect of global developments in satellite communications. Vast distances, difficult terrain, adverse weather conditions, sparse population and periods of intense interference throughout the northern regions meant that the cost of broadcasting and telecommunications services was hitherto prohibitive or their reception was either tenuous or impossible.

(d) Department of Transport study on satellite communications prepared by the Northern Electric and Hughes Aircraft Companies

By June, the second report which the transport department had

and Space Program in Canada, Special Study No. 1 (Ottawa: Queen's Printer, 1967), pp. 109-112.

¹United States, National Aeronautics and Space Administration, "Operational Geostationary Satellites," Washington, D.C., 21 March 1978, (Diagram.).

²D.J. Goodspeed, A History of the Defence Research Board (Ottawa: Queen's Printer, 1968), p. 192. The Defence Research Telecommunications Establishment (DRTE) was set up through an amalgamation of the Radio Physics and Defence Research Electronics Laboratories.

commissioned the laboratory division of the Northern Electric Company¹ to prepare was finished. It was not released to the general public and neither requested by the parliamentary committees which reviewed the enabling bill nor tabled during their hearings. This five-volume study confirmed the economic feasibility of the new technology under certain conditions and estimated that a total of between three and four spacecraft would be required by 1980-87. Its authors erroneously stressed Canada's need for a 40° space window (see Glossary) but correctly pointed out that the optimum orbits lay inside the 80° American or Sector 2 space window.

(e) Science Council of Canada recommendations for a central space agency

In July, the newly-organized advisory body known as the Science Council of Canada released the third report which reiterated the science community's demands for a central space agency in the form of a crown corporation and a *buy Canadian* policy: "... subject to reasonable cost differentials."² New recommendations included an emphasis on mission-oriented space research and an avoidance of any conflict of interest similar to the problems presented by the Communications Satellite Corporation (COMSAT).³

¹Canada, Department of Transport, Satellite Communications in Canada, 5 vols. (Ottawa: Northern Electric Company, Research and Development Laboratories, 1967.)

²Idem, Science Council of Canada, A Space Program for Canada, Report No. 1 (Ottawa: Queen's Printer, 1967), p. 10.

³Musolf, Mixed Enterprise, pp. 56-58. There are two sources of conflict of interest. COMSAT must act as manager of the International Telecommunications Satellite Consortium (INTELSAT) and as the U.S. representative amongst government entities even though privately-owned.

Three points should be highlighted. The technical feasibility of satellite communications had been extensively documented but only the cursory assessments had been widely circulated. A rare degree of solidarity¹ was displayed by the science community which now became an ally of the federal government. Superficially, any undue delay in the installation of a domestic satellite communication system would favour the common carriers at the expense of the national interest.

(f) Federal government white paper on satellite communications policy released by the Department of Industry

By the end of the fiscal year, a task force under the Minister of Industry had prepared a document which outlined certain aspects of the federal policy position. A tri-satellite system would be placed into service: "... to solve economically certain physical and social characteristics of the Canadian territory..."² particularly northern and peripheral regions. There would be direct and significant federal participation in every aspect of satellite communications including

COMSAT is subject to regulation by an American agency since it is a U.S. common carrier and to direction by the state department on account of a special charter provision.

¹G.B. Doern, "The Science Council of Canada," in The Structures of Policy-Making in Canada, eds. G.B. Doern and P. Aucoin (Toronto: Macmillan, 1971), p. 248.

²Canada, Department of Industry, White Paper On: A Domestic Satellite Communication System for Canada (Ottawa: Queen's Printer and Controller of Stationery, 1968), p. 32.

research, operations and regulation.¹ As a guardian of the public interest and an overseer of a monopolistic grant,² the federal Cabinet had concluded that: "... a domestic satellite communication system is of vital importance for the growth, prosperity and unity of Canada."³ A tentative schedule for the incorporation of the proposed composite enterprise and an outline of the phases for the proposed domestic adoption had been discreetly omitted.

By chance, design or due process, every vestige of conflict and uncertainty had been culled from this document before its publication and distribution to the general public. This blandness resulted from the introduction of five assumptions.⁴ The new facilities would complement rather than duplicate existing ones or make them redundant. East-west traffic requirements would grow at an annual rate of twenty per cent. A satellite system was the only reasonable way to deliver the quantum increase in capacity required. Between six hundred and one thousand miles was the break-even or cross-over range for point-to-point, multiple-access services (details in next chapter). Some kind of inter-system competition would

¹ Canada, Department of Industry, Domestic Satellite Communication System, pp. 50, 56, 54.

² M.R. Irwin and H.M. Trebing, "A Survey of Problems Confronting the Communications Industry in the United States," in Telecommunications for Canada, ed. H.E. English (Toronto: Methuen, 1973), p. 214. These authors suggest that the basis of monopoly in this sector has never been made explicit.

³ Canada, Department of Industry, Domestic Satellite Communication System, p. 8.

⁴ Ibid, pp. 12, 34, 12-14, 46.

ensure lower rates for end-users.

Not only the revenues from the network traffic of the Canadian Broadcasting Corporation (CBC) and others but also toll ones from telegraph, telephone, facsimile and data traffic would be diverted¹ as a financial basis for satellite communications. A debate on the correct time and proper use of these circuits for multiple-access instead of one-way television distribution was unobtrusively relegated to a standing committee in the House of Commons and one in the Senate. There would be no delay since a failure to engage in discussions leading to participation in the proposed composite enterprise would prompt the organization of a crown corporation or mixed enterprise. As will be outlined in the next chapter, the common carriers were well aware that a permanent forfeiture of access to this segment, a loss of future growth territory and markets, and an undermining of other prerogatives would accompany this precedent.

(g) Trans-Canada Telephone System and CN/CP Telecommunications
recommendations for restricted satellite communications operations or
role of carriers' carrier

The final, pre-legislation misdeal from the common carriers was

¹"Keeping Posted: Telecommunications - All done by auto-numbers," Financial Post, 3 December 1977, sec. 1, p. 8. One incentive for Bell Canada to approve the installation of a regional switching office with a capacity of 20-30 years in Grand Falls, Newfoundland was the transfer of CBC traffic from CN Telecommunications to the TCTS.

delivered four months later.¹ The telephone and telegraph consortia acknowledged the unique capabilities of satellites to serve sparsely populated regions and recommended that the forthcoming organization function as a wholesaler and only lease the full capacity of each radio frequency (R.F.) channel (see Glossary). As a carriers' carrier, it should be prohibited from renting to anyone other than the federal broadcasting company or a consortiums' consortium of common carriers. Ownership should initially be restricted to the federal government and the common carriers. Appointments to the board of directors should be based solely upon equity.

The *quid pro quo* for their active or passive participation and recognition of the thrust of federal aspirations concerning economic, regional² and resource development took the form of multiple-access design, commercial restrictions and proprietary claims. These consortia would retain their system planning prerogatives and the privilege to control interconnection³ of peripheral equipment (see Glossary) on the

¹Trans-Canada Telephone System and CN/CP Telecommunications, "Canadian Communications Satellite System: Considerations and Recommendations," Submitted to the Minister of Transport, Ottawa, Ontario, July 1968; (Brief.)

NOTE: The pages containing points (1-4) in the third recommendation on corporate financial structure had been removed before the copy was made.

²R.W. Phidd, "Regional Development Policy," in Issues in Canadian Public Policy, eds. G.B. Doern and V.S. Wilson (Toronto: Macmillan, 1974), pp. 166-199.

³Canada, Department of Communications, Problems Relating to the Interconnection of Terminal Devices With Common Carrier Provided Telecommunications, Telecommisison Study 8(b)(iii) (Ottawa: Information Canada, 1971), pp. 8-11.

grounds of their historical efficiencies. Since the possibility, or even the desirability of satellite ownership had for the most part been rejected, earth stations moved to the fore. Their policy paper stated that the proposed composite enterprise should be restricted to the ownership of telemetry equipment (see Glossary) and that broadcasters should be confined to the ownership of receive-only antennas. The common carriers must retain their control over exchanges or central switching offices (see Glossary) and should receive ownership rights for two-way earth stations at the proper time. Public participation in the composite enterprise should be deferred since:¹

It should be recognized that it may be a number of years before the satellite corporation becomes profitable as a separate entity.

Was this statement an incisive prediction² or a promise?³

(h) Science Council of Canada guidelines for Canadian research and development or major prototype program

The last, pre-legislation paper⁴ produced by the science community

¹Trans-Canada Telephone System and CN/CP Telecommunications, "Considerations and Recommendations," p. 4.

²G.D. Hutchison, "After the bright start, things go sour for Telesat," Financial Post, 14 May 1977, sec. 1, p. 7.

³Idem, "CRTC hearing's evidence: Telesat's decision to join Telephone system a Golden one?" Financial Post, 28 May 1977, sec. 1, p. 10.

⁴Canada, Science Council of Canada, Towards a National Science Policy for Canada, Report No. 4 (Ottawa: Queen's Printer and Controller of

for release to the general public was delivered in October of 1968. This active stakeholder stressed the need for large, mission-oriented and multi-disciplinary programs which would include basic and applied research plus development and innovation (see Glossary). Its authors also pointed out that these prototype major programs were necessary since in the past r&d projects had repeatedly been cancelled before the innovations were produced which might have reaped sufficient benefits to justify long-term expenditures.

In summary, these documents described an excellent - almost ideal - situation in which a particular organizational mode could serve a number of parties and purposes. The official rationale for the incorporation of a composite enterprise was that the domestic adoption of the new technology would proceed without delay and that there would be a co-ordination of effort, a sharing of policy-making and administrative control amongst powerful interest groups and a preservation of vested interests.

4. Central Hypothesis

The raison d'être of the opening chapter is to document and justify the central hypothesis of this case study. Specifically, there is a low probability of direct control¹ (see Glossary) being shared on an equal

Stationery, 1968), pp. 8, 23, 29.

¹Dahl and Lindblom, Politics, Economics, and Welfare, p. 94.

basis, of influence¹ being matched or of values being blended by the principals of the composite enterprise under review. One focal point of any power struggle would be the election or appointment of directors to the board. Another one would be the approval of certain capital expenditures. Failure to establish then preserve an equal balance or to utilize similar premises would mean that the organization was mixed in form but either a public or private sector subsidiary in substance.

The original proposal to the Board of Broadcast Governors subtly preferred an organizational mode which rests at the interface between the public and private sectors. As such, it was the means to ensure that a single party could not gain exclusive control over this new technology. Why was sharing so preferable? A tentative explanation is that as soon as there was a serious commitment to install a domestic satellite communications system, the only organization which might prevent constitutional conflict and/or reduce predatory practices was the mixed enterprise. Assuming for the moment that intervention was necessary, the mere incorporation of that instrument might achieve a variety of public policy goals with a minimum of coercion under the circumstances and without a large or permanent commitment to unreasonable investment(s) or annual appropriations.

Exactly what were the vested and shared interests of the active stakeholders and which ones were potential coalition members?

¹Wieland and Ullrich, Organizations, p. 248.

CHAPTER 2: PRE-SATELLITE STRUCTURE

Chapter Two sets out to accomplish two tasks. The full implications of a rare and unique foray by the federal government into this sector will be examined. General observations and the research findings from the handbook¹ and a background paper² will be used to refine the theoretical approaches and the central hypothesis. The chapter is divided into three sections: instruments of constitutional jurisdiction, organizational control mechanisms and central hypothesis.

1. Instruments of Constitutional Jurisdiction

This section examines a number of questions. Exactly what are the distinguishing features of a major technological development? What are the boundaries of the policy field? What governing body has authority over a particular aspect or a given territory? What organizations are the chosen instruments of which governing body(s)? Answers will be tendered in the following segments: major technological developments, definition of the policy field and chosen instrument(s).

¹J.A.R. Brothers, ed., Canadian Telecommunications' Profile: A Handbook of Facts, Events and Choices From 1603 to 1978, 2nd ed. (Ottawa: By the Editor, 144d Woodridge Crescent, 1978), 600pp.

²Idem, Commercial and Operational Adoption in Canada of Major Technological Developments (Ottawa: By the Author, 144d Woodridge Crescent, 1978), 150pp.

(a) Major technological developments

The primary feature which distinguishes this phenomenon from other innovations is the perfection of a device or apparatus during:¹

The transfer of technology along the line from the more general to the more specific. In particular, it includes the process by which new scientific knowledge is incorporated into technology, and by which a *state of the art* becomes embodied in a system, and by which the confluence of several different technologies, leads to a new technology.

A breakthrough can occur in different places at about the same time even though the parties involved may never have communicated with each other. It is a turning point if there is an apparatus which encapsulates the above confluence. It is the crucial one if the device is a patentable and master invention since a monopolistic grant² can be secured from one or more countries.

There are two over-lapping processes. Technological transfer consists of basic and applied research then development.³ When a patentable invention is perfected during the development phase, it is the innovation

¹ H. Brooks, The Government of Science (Cambridge, Mass.: M.I.T. Press, 1968), pp. 255-256.

² W.R. MacLaurin, Invention and Innovation in the Radio Industry (New York: Macmillan, 1949; Arno Press and New York Times, 1971), pp. 242-264.

³ P. Kruus, Basic Research, Background Study for the Science Council of Canada, Special Study No. 21 (Ottawa: Information Canada, 1971), pp. 10, 33.

which can trigger the start of the second process. Commercial adoption consists of feasibility study(s), competition, consolidation then government intervention. Operational adoption is identical except that the middle two phases are short-circuited.

Over the past hundred and fifty years, the transfers have become predominantly between groups and/or organizations scattered around the world. Each entity specializes in different phases and kinds of innovation rather than rely upon creative leaps¹ between the minds of a pair of inventors.² The items listed below are the major technological advances and their invention(s) or *key facility(ies)*³ which meet the prerequisite under consideration:

telegraphy	key
telephony	set and exchange
wireless	receiver/transmitter
satellite communications	satellite/earth station

A secondary feature is a political, economic and/or legal restriction(s) which prevents incremental adoption by existing organization(s). The items listed below and on the next page are some of these developments and their constraints:

telegraphy	patents
• telephony	takeover bids
	local nature on account of
	range limitations

¹A. Koestler, The Act of Creation, Revised Danube ed. (London: Hutchison, 1964; Pan Books, 1970), p. i.

²A. Jay, Management and Machiavelli (London: Hodder & Stoughton, 1967; Harmondsworth: Penguin, 1970), pp. 93-95.

³C.E. Beigie, "An Economic Framework for Policy Action in Canadian Telecommunications," in Telecommunications for Canada, ed. H.E. English (Toronto: Methuen, 1973), p. 197.

wireless	lack of a master patent
	national security implications
broadcasting	regulatory rulings
community antenna (CATV)	
television	regulatory rulings
pay television	prohibition

Nationalization, provincialization or municipalization has never occurred in the United Kingdom of Great Britain (UK), USA or Canada before the expiry of the original master patent(s). In addition, they never included manufacturing operations.

The following are a couple of general observations on the past record of government intervention in this country. Firstly,¹

Much of the increased intervention of the federal government ... has been directed towards stabilizing the economy, without changing its essential character as an economy owned and controlled by national and international corporations.

Secondly,²

Two conditions have been primarily responsible for the extent of state intervention in Canada: the inability or reluctance of private enterprise to take business risks.... and the willingness of influential groups of Canadians to use the power of the dominant government in the search for ... security.

In the first chapter, Musolf's typology suggested that a mixed enterprise would be incorporated in response to financial difficulties, lack of

¹J. Porter, The Vertical Mosaic: An Analysis of Social Class and Power in Canada (Toronto: University of Toronto Press, 1965), p. 417.

²M. Prang, "The Origins of Public Broadcasting in Canada," Canadian Historical Review 46 (March 1956): 1.

venture capital and/or too much foreign competition. But, the reasons presented in the official rationale bore little resemblance to these theoretical ones. The observations on the previous page, however, provide a plausible explanation. One point should be clarified. A peculiar feature of satellite communications is that there are two forms of risk. On the one hand, hundreds of millions of dollars worth of fixed capital expenditures for existing terrestrial facilities might be at stake. On the other hand, tens of millions of dollars worth of space development and/or satellite procurement costs might be lost if one or more launch failures occurred, the system failed to function at all or a malfunction happened¹ (details in the next section).

(b) Definition of the policy field

The boundary of the Canadian communications industry is a fluid perimeter. It fluctuates with the entry or exit of any given organization or issue which has an active interest in or relevance to any choice(s) under review in the sectoral decision-making process(es). Based upon the documents and material presented in the previous chapter, the stakeholders are: the federal government and the provincial ones, regulatory commissions and public utility boards,² common carriers, management of the proposed

¹ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 38, pp. 1925-7.

² Idem, Department of Communications, History of Regulation, pp. 70-3.

composite enterprise, broadcasters, CATV operators¹ (see Appendix C), science community and a bevy of electronic, telecommunications equipment and aero-space manufacturers. Given that existing technology has predominantly been transferred to this country from the UK and USA, the perimeter could extend from the Canadian manufacturing and operating subsidiaries outwards to their parent and holding companies in those countries.

The central issue is stability versus resource development. If the policy field is momentarily conceptualized as the abstract organization described in the previous chapter, the choices which will have the greatest impact on the structure and decision-making process itself are unexpected or revolutionary ones. Given that this thesis is a case study of a specific sector,² it would seem reasonable to presume three things. The operational adoption of a major technological development will be the main cause³ of any fundamental change. The choices necessitated by these innovations will be the paramount ones. Resource development will be denoted by both the rate and direction of domestic and international adoption on a commercial or operational basis.

¹K.J. Easton, "A shorty history of cable TV," in search 4 (Fall 1977): 1-9.

²H.E. English, ed., Telecommunications for Canada (Toronto: Methuen, 1973), p. 11. In this thesis, the terms - policy field, sector and industry - will be used inter-changeably.

³R.L. Heilbroner, Between Capitalism and Socialism: Essays in Political Economics, Vintage Book ed. (New York: Random House, 1970), p. 23.

Given the concept of *eminent domain*,¹ all formal authority resides with the state. Its governing body(s)², can either prohibit³ or permit the domestic or international adoption of a major technological development by organization(s) which are subject to its or their laws. The state can either rely upon due process or explicitly select the organization(s) whose operations will be legitimized by one or more enabling acts and/or a charter(s). In the first instance, the governing body(s) usually rely(s) upon patent and general laws of incorporation. In the second instance, one or more of the governing bodies must design a special statute which allocates responsibility to a particular organization(s), specifies the details of the valid or *intra vires* delegation and outlines the exact territory in which the operations of that instrument are legitimate.

In either instance, competition⁴ between governing bodies over

¹ P.G. Osborn, A Concise Law Dictionary, 5th ed. (London: Maxwell & Sweet, 1927-64), p. 120.

² A. Booth, "Quebec Notebook: Linked to Ryan," Financial Post, 30 September 1978, sec. 1, p. 20. The leader of the Québec Liberal Party suggested that the word *state* should be used instead of *province* which has a *limited and pejorative meaning* which is inconsistent today's political reality.

³ J.A.R. Brothers, ed., Canadian Telecommunications' Profile: A Handbook of Facts, Events and Choices From 1720 to 1976 (Ottawa: By the Editor, 144d Woodridge Crescent, 1976), pp. 185-322. In 1933, *La Presse* newspaper operated an experimental television station (CFCF) with 12 sets in Montreal. In 1952, the CBC opened the first commercial ones in Montreal and Toronto. For twenty years after a federal minister rejected the CPR request for a monopoly over television, licences were not issued for television stations and a network even though the British Broadcasting Corporation (BBC) operated these facilities from 1936-39 and 1946-present.

⁴ P. Self, Administrative Theories and Politics: An Inquiry Into the Structure and Processes of Modern Government (London: Allen & Unwin, 1972;

constitutional jurisdiction and/or organization(s) over operating territory and markets is possible. The degree and duration of uncertainty will be determined by whether one governing body has an explicit and exclusive mandate and/or one organization or a consortium can claim and maintain policy-making and administrative control over existing and new technology. In other words, stabilization and resource development will remain mutually exclusive sub-goals of economizing¹ until a permanent compromise on the issue(s) posited by any new development has been negotiated by the active stakeholders or settled by government decree.

The written portion of the Canadian constitution specifies neither a clear division of authority and an exact boundary line nor a formula for the definition of jurisdiction in the communications policy field. Federal claims hinge upon Clause 91, in that:²

It shall be lawful for the Queen, by and with the Advice and Consent of the Senate and House of Commons, to make Laws for the Peace, Order, and good Government of Canada,...
the exclusive Legislative Authority of the Parliament of Canada extends to all Matters coming within the Classes of Subjects next herein-after enumerated;..
5. Postal Service.

Toronto: University of Toronto Press, 1973), p. 99. In a unitary state such as the UK, there is no constitutional problem. In a confederation such as Canada or a republic such as the USA, there is always a potential one.

¹ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Minutes of Proceedings and Evidence, No. 36 (Ottawa: Queen's Printer, 1969), p. 1844.

² Idem, Department of Justice, A Consolidation of The British North America Acts: 1867 to 1965 (Ottawa: Information Canada, 1965), pp. 24-25.

Judicial interpretations over the past hundred years of the *peace, order and good government* phrase have fostered a peculiar situation. The federal Cabinet and central agencies can gain a considerable advantage over most provincial government(s) and regional interest(s) for a short period of time whenever an opportunity to invoke that provision is seized.

Provincial claims rely upon Clause 92, in that:¹

In each Province the Legislature may exclusively make Laws in relation to Matters coming within the Classes of Subject next herein-after enumerated;..

10. Local Works and Undertakings other than such as are of the following Classes:-

(a) Lines of Steam or other Ships, Railways, Canals, Telegraphs, and other Works and Undertakings connecting the Province with any other or others of the Province, or extending beyond the Limits of the Province;..

16. Generally all Matters of a merely local or private Nature in the Province.

Several observations should be stressed. Telegraph and telephone services are not enumerated in Clause 91 and telephone ones are not enumerated² in Clause 92. The bulk of the telegraph companies at the time of Confederation operated under provincial charters. Federal clout in the form of companies which operated under Dominion charters was meagre until more than a decade after the Imperial statute under review was proclaimed.

¹ Canada, Department of Justice, BNA Act, pp. 27-28. Alexander Graham Bell (Bell) was not issued a patent for the telephone until 1876.

² F.G.C. Baldwin, The History of the Telephone in the United Kingdom (London: Chapman & Hall, 1925), p. 43. Four years before Confederation, the U.K. Telegraph Act of 1863 was passed. In 1880, the British Exchequer Court ruled that the Edison telephone (see Appendix D) was a telegraph as defined in that Imperial statute.

In 1880, two subsidiaries¹ of the National Bell Telephone Company of Boston were organized. Two years later, they were merged in exchange for a federal declaration in the Bell Canada charter that its works and undertakings were for the general advantage of Canada.² A month earlier, an exclusive right³ to use telegraph facilities alongside the Canadian Pacific right-of-way had been granted. Over the years, various provincial governments used different tactics to counter-act this kind of encroachment with some very curious results (see Appendices D through G).

The Re Radio Reference Case⁴ was the next pivotal incident and the largest expansion of federal prerogatives to date. The Judicial Committee of the Imperial Privy Council ruled in 1932 that that governing body has an exclusive right to regulate and licence the use of Hertzian waves. Ever since this precedent and except for broadcasting undertakings, the federal and provincial governments have avoided overt conflict by relying more and more upon the locus of incorporation⁵ and average rate of return

¹"Is Bell Canada a member of the Bell System?" Blue Bell (October 1966): 6-8. The headquarters firm in Montreal was named the Canadian Telephone Co., Ltd. and incorporated under a Québec charter. The associate company was named The Bell Telephone Company of Canada and incorporated under a Dominion charter instead of the Ontario one as originally planned.

²R.C. Fetherstonbaugh, Charles Fleetwood Sise: 1834-1918 (Montreal: Gazette, 1944), pp. 147-155.

³Canada, Department of Communications, Study of Institutional Structure, p. 5. When the TCTS was formed in the early 1930s, it was necessary to use railway circuits to fill three gaps. When the continental telephone consortium finished its microwave trunk line in the late 1950s, the Sudbury-Winnipeg one was finally eliminated.

⁴F.W. Peers, The Politics of Canadian Broadcasting 1920-1951 (Toronto: University of Toronto Press, 1969), pp. 68-72.

⁵Canada, Department of Communications, Constitutional and Legal Basis for Regulation, pp. 138-142 and Appendix 4, pp. 143-158.

regulation.¹

The governing body with a clear *de jure* mandate over the operational adoption of satellite communications was the federal one. Since national sovereignty does not extend beyond the ionosphere and an exclusive patent pool was unlikely,² only two options would avoid serious constitutional and commercial conflict. Either the adoption of satellite communications must be prohibited or an instrument must be designed which could co-opt the active stakeholders. Which organization(s) could or should exercise direct control over the rate and direction of development is the fundamental question posited by the domestic adoption of satellite communications and the establishment of Telesat Canada.³ Without an awareness of its broadest implications, neither the role nor the operations of this composite enterprise can be fully understood.

¹Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 36, p. 1839. The president of Québec-Téléphone raised serious doubts about the effectiveness of overall rate regulation without an assessment of individual cost factors.

²A.D. Wheelon, "A Business Perspective of the Communications Satellite Market," Speech delivered by an executive of the Hughes Aircraft Company to the 7th American Institute of Aeronautics and Astronautics, Communications Satellite Systems Conference, San Diego, California, 25 April 1978, (Mimeographed,) p. 3. The main patents are held by Hughes Aircraft Company and RCA Corp. for their spinning gyrostatt and three-axis stabilization systems, respectively. Since these systems were first demonstrated on United States Air Force (USAF) programs, it is unlikely that exclusive rights would be allowed. Indeed, the U.S. government usually insists upon licensing at reasonable rates but in this case may suggest that only a nominal fee be charged.

³Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 36, p. 1833.

(c) Chosen instrument(s)

In spite of two important drawbacks, the panacea for all of the jurisdictional problems fostered by the confederated form¹ of state has been the chosen instrument policy. One flaw is that this approach:²

Shifts decision making authority from those who have the responsibility for policy control - government - to those who have the responsibility for administrative operation - management.

The other flaw is that:³

• Regulation has been and continues to be too much in the way of a substitute for rather than an integral part of a sound policy of public intervention.

Neither governing body has been able to sustain a claim to an exclusive mandate. Their unwillingness to negotiate a compromise which would cover the foreseeable future and an amendment formula which would handle unexpected contingencies has produced token rate regulation⁴ (more

¹P.E. Trudeau, Federalism and the French Canadians (Toronto: Macmillan, 1968), pp. 188-203.

²Beigie, "Economic Framework," in Telecommunications, ed. English, p. 146.

³Ibid, p. 145.

⁴Canada, Department of Communications, History of Regulation, pp. 36-38. Between 1892 and 1906, rate regulation was possible solely under the auspices of the Bell Canada charter. In 1892, the federal Cabinet received the authority to prohibit telephone rate increases without its consent. Ten years later, municipalities received the right to apply for telephone rate changes and the federal Cabinet could now request a court to conduct an inquiry. Eighty years later, a federal regulatory commission proposed that subscribers should be granted the right to petition for a telephone rate hearing. Back in 1906, provisions for rate regulation in the Railway Act were extended to Bell Canada by a charter amendment and sixty years later

details in Chapter 4) and a series of *ad hoc* adjustments. The cumulative effect is the patchwork of crown companies and privately-owned corporations illustrated in Exhibit 5.

There is a historical difference in the premise(s) that were used by the two governing bodies. Until the advent of satellite communications, the federal government had never intervened in advance of commercial adoption and only after privately-owned corporations were in financial difficulties (see Appendices A and B). The regional governments have been willing to resist centralization of the decision-making process and concentration of politico-economic power outside their respective territories. On one occasion, they used the passage of a unique statutory provision.¹ On another occasion, it was the provincialization of existing operations.² Consequently, the surest way to establish a *de facto* jurisdictional claim has been the incorporation of a chosen instrument.

a regulatory board adopted rate of return on total average capitalization and specified a permissive level of earnings for that company between 6.2 and 6.6 per cent.

¹Canada, Department of Communications, History of Regulation, pp. 16-17. Bell Canada presently holds a majority of the common shares of the Maritime Telegraph and Telephone Co., Ltd. for the second time. It was guaranteed the conditional appointment of at least two directors by the passage of a private members' bill then denied a majority of votes on the board by a government one.

²"Bell Telephone Company History," Telephone Museum & Historical Collection, 7 April 1948, (Mimeographed.) The purchase prices paid by the Alberta, Saskatchewan and Manitoba governments to Bell Canada were: \$675,000; \$357,000 and \$3,400,000. The crucial difference with this territorial loss vis-à-vis the Maritime one was that minority ownership and conversion to associate company status was impossible.

EXHIBIT 5

STATUS OF SELECTED CHOSEN INSTRUMENTS

Source: J.A.R. Brothers, ed., Canadian Telecommunications Profile: A Handbook of Facts, Events and Choices From 1603 to 1978, 2nd ed. (Ottawa: By the Editor, 144d Woodridge Crescent, 1978.)

2. Organizational Control Mechanisms

This section addresses three questions. What legal principles and innovations have had the most influence on the relationships between and amongst government entities and privately-owned corporations in this policy field? What are the general operating principles which provide some of the premises for capital expenditures on key facilities? What kinds of common carrier are there and what is the significance of any differences?

Answers will be filed in the following segments: the rule of law, operating principles and common carrier classification.

(a) Rule of Law

By definition, the paramount interest shared by a chosen instrument and its governing body(s) is the establishment and preservation of a monopoly¹ and exclusive rights for a given territory albeit a regional, trans-regional, national or international one. By inference, this constitutional situation and market condition enhance the importance of the rule of law. This concept will be scrutinized from two perspectives.

(i) legal principles and precedents

Three principles have been expounded by the judiciary since the

¹J.A. Schumpeter, Capitalism, Socialism and Democracy, 4th ed. (London: Allen & Unwin, 1943-54; Unwin University Books, 1974), pp. 87-106.

latter part of the 1800s which have a considerable bearing on the public policy problems inherent in this sector. One of these legal guidelines is that the corporation should be considered a natural person.¹ The relevance of this principle to the continuum in Exhibits 1A-C is threefold.

A government entity must only undertake those duties which are clearly specified in various statutes that are within the constitutional jurisdiction of the governing body(s) which passed the laws and/or delegated power under them. An individual or proprietor has the freedom and responsibility to do whatever that party wishes unless prohibited by a reasonable international, statutory, by-law, common and *adroit civil*, or customary law. The mixed enterprise portion of the continuum was a veritable *no-man's-land* until the advent of satellite communications. The domestic telegraph consortium and the continental telephone one could be classified as a mixed and composite enterprise, respectively. The lack of a Dominion or provincial charter and of direct regulation indicates; however, that the correct position is just inside or beyond the proprietor one at the end of the continuum in Exhibit 1.

The significance of the *natural person* principle is twofold. As long as the corporation cannot be successfully prosecuted and functions within its capitalization and charter provisions, it has a considerable advantage over any government entity in a conflict situation. Expertise, longevity and financial resources mean that it also has power which far outweighs

¹Canada, Laws, Statutes, etc., Telesat Canada Act, R.S.C. 1968-69, c. 51, s. 1 (Ottawa: Information Canada, 1971), sec. 7(1), p. 5. In 1886, the U.S. Supreme Court ruled in the Santa Clara County versus Southern Pacific Railroad Company case that the private corporation should be regarded as a *person*.

those of any single individual. The other legal guideline¹ is that corporations with similar objects should be treated before the law as equals. The importance of this principle is that common carriers with Dominion and provincial charters should be accorded similar treatment, regardless of whether controlled by Canadians or non-residents.

Over the years, incorporation has become a right accessible to every citizen instead of a privilege reserved for a few wealthy individuals. Yet, the chosen instrument policy and the "... concept that the one major organization in a province would represent the interests in that area ..." ² have remained the antithesis of any genuine liberalization in the telecommunications segment of this policy field.

During the past century, the use of contracts has grown tremendously since it is: "... a device by which private persons are enabled to some extent to stabilize and make predictable - to control - the future." ³ This legal innovation is particularly relevant to the case study under review since: "... the force of the market was substituted for the force of law to achieve desired organization and regulation of power." ⁴ The

¹ Canadian Abridgement, 2nd ed. (1965), s.v. "#2723 CPR vs Western Union."

² Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Minutes of Proceedings and Evidence, No. 34 (Ottawa: Queen's Printer, 1969), p. 1732.

³ A. Chayes, "Modern Corporation and the Rule of Law," in The Corporation in Modern Society, ed. E.S. Mason (Cambridge, Mass.: Harvard University Press, 1960), p. 32.

⁴ Ibid. p. 36.

Cyert and March typology, introduced in the first chapter is based upon the assumption that there is a: "... need to supplement the study of market forces with an examination of the internal operation of the firm."¹ Consequently, an awareness of various leases, commitments, agreements, memorandae and correspondence is yet another prerequisite for a valid understanding of organizational structure and conventional practice albeit of the entire sector or a particular composite enterprise.

(ii) market segmentation arrangements

In many ways, the Canadian communications policy field resembles *an enigma wrapped in a mystery*. A further insight into its workings can be gleaned from the realization that the structure and decision-making process were not forged only by the transfer to this country of major technological developments. Since the courts have never been able to produce a ruling(s) which ended conflict between the governing bodies, there was another primary determinant.

In 1879, the Western Union Telegraph Company (Western Union) and the American Bell Telephone Company of Boston executed a patent pooling agreement based upon their settlement of an infringement suit. Using the long-distance and local nature of telegraphy and telephony, it in effect allocated the first one to the former and the second one to the latter.² A similar pool was put together in Canada by a special agent³ and

¹ Cyert and March, Behavioral Theory of the Firm, p. 1.

² H. Coon, American Tel & Tel: The Story of a Great Monopoly (New York: Longman's, Green, 1939), pp. 80-81.

³ W. Patten, Pioneering the Telephone in Canada (Montreal: By the

produced two keynote reactions. The federal government simply modified the parties when it designated the Canadian Pacific Railway Company (CPR) and The Bell Telephone Company of Canada (Bell Canada) as its chosen instruments. Special and regional interests sought to oust the American telegraph company¹ and to prevent the growth of the above telephone subsidiary which was controlled by foreign and central Canadian interests (see Appendix D).

In 1911, a transaction was executed by the General Electric Company, Westinghouse Electric & Manufacturing Company and Western Electric Company. Based upon their subsequent behaviour during the Alexanderson Alternator incident² and the formation of a vacuum tube/repeater amplifier patent pool, it involved a tacit allocation of the general power business to the first two companies and of telecommunications to the American Telephone & Telegraph Company (AT&T).³ Shortly thereafter, two of these companies proceeded to acquire a majority interest in their Canadian subsidiary or manufacturing licensee.⁴

Author, 1926), pp. 54-80. This agent was the manager of the operations in the USA of the Royal Canadian Insurance Company and was named: Charles Fleetwood Sise.

¹Canada, Department of Communications, Study of Institutional Structure, p. 5. When Western Union abandoned its operations in British Columbia and the Maritimes, its facilities were transferred to the CNR.

²G.L. Archer, History of Radio to 1926 (New York: Arno Press and New York Times, 1971), pp. 103-182.

³MacLaurin, Invention and Innovation, pp. 28-36.

⁴E. Geraghty, "The Beginning of Telephone Manufacture," Telephone Historical Collection, 19 January 1968, Montreal, Québec, (Mimeographed.)

These companies and several others executed general agreements in 1920 and 1926 which provided the precedent for many other arrangements. On the one hand, the bulk of the wireless business in the Americas was allocated to the Radio Corporation of America (RCA) and Marconi's Wireless Telegraph Co. Ltd. of Great Britain.¹ On the other hand, trans-continental traffic was preserved for Western Union and AT&T.² The installation of a Montreal-Vancouver circuit by Marconi's Wireless Telegraph Company of Canada which would have changed the existing division of revenue was forestalled by the CPR.³

The General Agreements also formed the basis for a consent decree⁴ in 1932. It acknowledged the organizational distinction between the domestic telecommunications systems (Western Union and the Bell System) and electronic media networks (National Broadcasting Company). It confirmed that this separation reflected another vital tenet⁵ of the

The Canadian General Electric Company is still a wholly-owned subsidiary. The Western Electric Company was forced to relinquish its Northern Electric holdings by a 1956 consent decree.

¹W.J. Baker, A History of The Marconi Company (London: Methuen, 1970), pp. 154-180.

²Archer, History of Radio, pp. 194-195.

³Canada, Department of Communications, The International Role of Canadian Telecommunications Companies, Telecommission Study 3(d) (Ottawa: Information Canada, 1971), p. 10.

⁴Archer, Big Business and Radio, pp. 368-386.

⁵M. Friedman, Capitalism and Freedom (Chicago and London: University of Chicago Press, 1962), pp. 21, 127. In the USA, privately-owned corporations became the mainstay of individual freedom. In the UK,

communications policy field. The Anglo-American scheme for the expansion into Canada of two interlocking networks which dominated the production of radio programmes in the UK and USA prompted the organization of a federal broadcasting company (see Appendix A).

For the most part, these market segmentation arrangements were based upon patent pools and/or interconnection agreements. The first technique nullifies the problems generated by a lack of a master patent and increases the propensity of independent inventors to sell their rights.¹ It permits the use of infringement suits to forge an exclusive grant, extend the number of years specified in the patent² and/or determine a more precise basis for revenue sharing by the participants in any pool(s). The second technique is the main determinant of the boundary between different organizations or consortia.

The service agreement is a special kind of interconnection contract whereby the conversion of licensee(s) to associate(s) or visa-versa can be scheduled using minority shareholdings, membership on the board of directors, access to confidential information and capitalization restrictions.³ Over the past hundred years, the term of these contracts and others has generally been reduced from ninety-nine years in extreme

government entities became the guardians of the public interest.

¹"Poaching technology: Today's patent system encourages poaching. The old game laws should be liberalized," Economist, 2 September 1978, pp. 81-82.

²MacLaurin, Invention and Innovation, p. 257.

³J.C. Goulden, Monopoly (New York: Putnam's Sons, 1968), pp. 56-57.

cases towards a standard of ten or five years. In this way, flexibility is assured and a practical cycle for economic management or in the lexicon of the communications industry - productive system planning of key facilities - can be instituted.

Based upon the material introduced in this segment, it would seem reasonable to draw two conclusions. Four extraterritorial¹ applications of market segmentation arrangements also determined the variety and disposition of the chosen instruments presented in Exhibit 3. When carrier currents² eliminated the traditional differences between telegraphy and telephony facilities, this innovation prompted certain adjustments. Two new chosen instruments were formed, i.e. the domestic telegraph consortium and the continental telephone one. A fifty-year-struggle began for sectoral supremacy and exclusive contracts for the distribution of radio and television programmes. Why were these traffic revenues so important?

(b) Operating principles

Two hundred years of research and development have elevated the technical aspects of communications from an art to a science. In spite of

¹I.A. Litvak, C.J. Maule, and R.D. Robinson, Dual Loyalty: Canadian-U.S. Business Arrangements (Toronto: McGraw-Hill, 1971), pp. 153-156.

²Encyclopedia Americana, International ed. (1972), s.v. "Telegraph: Alternating Current Signalling." Frequency-division multiplexing meant that telephone and telegraph traffic could be carried simultaneously over the same circuits. The use of alternating signals also meant that electrical power lines might provide a distribution facility at marginal costs.

a plethora of specialized terms, there are a few basic concepts and a number of principles that assure successful operations and productive system planning of key facilities.

One vital component in any circuit, system or network is some kind of medium which connects two or more distant points and parties. Some examples are: atmosphere, outer space, wire or twisted pairs of insulated conductor and glass fibre. The medium can consist of a double-strand configuration or a single one used sequentially to send then receive a signal during two- or one-way communications. Depending upon the length of the medium and the application of an arbitrary standard, the result is a pick-up, local loop or long-distance (toll or *long-line*) circuit.

Signals can be categorized as either electro-magnetic (Hertzian) waves or pulses of light and/or electricity. Location on the radio spectrum¹ (see Supplementary Exhibit C1) can be used to characterize any signal. Channels can be allocated until demand exceeds this limited resource.² Bandwidths can be set to reduce interference within a particular frequency band.³ The drawings on the next page illustrate the configuration

¹Canada, Department of Communications, "The Spectrum," Ottawa, Ontario, 1976, (Brochure,) pp. 12-13.

²R. Laver, "New CB service proposed to beat overcrowding, abuse," Citizen, Ottawa, 25 September 1978, sec. 1, p. 8.

³United States, National Aeronautics and Space Administration, "Commercial Communications Satellite Frequency Allocations," Washington, D.C., 21 April 1978, (Illustration.)

for two generations of communications satellites:

	Anik I	Anik II
channel	6/4GHz	14/12GHz
bandwidth	36 MHz	54 MHz

Anik I was divided into 12 radio frequency (R.F.) channels (see Glossary) in order to facilitate multiple-access. The Anik II will be divided into 8 R.F. channels in order to facilitate two-way, tele-conference transmissions.

So far, the hypothetical signals have been exchanged by two parties at each end of the medium. The configuration for microwave relay by towers is:

The configuration for microwave relay by satellite is:

If a sender wants to reach everyone at the same time, this one-way communications for direct-to-home linkage is called broadcasting when the keynote medium is the atmosphere or satcasting when it is the outer space.

If a sender wants to reach a party in an urban centre, a form of two-way communication is the public telegram. If a sender wants to reach a selection of receivers on an individual basis, switching is required. Depending upon the size of the exchange and the application of another arbitrary standard, the result is a district, regional or *gateway* switching office. This form of two-way communication is most commonly known as telephony or private wire telegraphy.

Hybrid forms of one- and two-way communications are CATV systems (see Appendix C) and satellite communications facilities. Whether the exchange is electronic, auditory and/or visual, the total number of parties which can be interconnected is the symbolic or message exchange universe.

Sending devices can be as simple as the semaphore arm. Receiving ones can be as complex as the human eye or ear. Examples of these apparatus are telegraph keys, telephones, radio and television sets, data terminals and printouts. This peripheral equipment is traditionally sold (e.g. telegraph keys) or leased (e.g. telephones) depending upon whether or not the end-user is also the operator. Ownership of the switching mechanism is usually retained by the traffic operator.

Based upon this simplistic analysis, the first operating principle

is closely related to a characteristic which distinguishes telecommunications from its progenitors. Whereas messengers or the mail can utilize general transportation equipment which travels along public roads, waterways or sea-lanes, the new signals require specialized facilities¹ which are capital intensive. Given the resultant high fixed costs (especially for long-line circuits),² economizing becomes directly related to the volume of traffic as a percentage of capacity utilization. This guideline explains why the renewal of the leases for the regional and national distribution of radio and television signals with their broadband requirements and instant capacity utilization are so crucial for trunk line profitability. It also partially explains the rapid decline in the use of telegrams as the cost of labour outstripped the cost of capital³ and all-electronic systems replaced switching by hand.

In spite of their specialized nature, modern communications facilities are still bound to the availability of general transportation systems⁴ by a

¹International Telecommunications Union, From Semaphore to Satellite (Geneva: ITU, 1965.)

²G.D. Hutchison, "Phone firms reduce spending plans as service demands drop," Financial Post, 8 October 1977, sec. 1, p. 14. Toll circuits generate about one half of the gross income but incur only about one fifth of the total costs. Bell Canada obtains sixty per cent of its revenues from local subscribers while the provincial crown carriers derive about the same percentage from toll subscribers.

³Canada, Department of Communications, Study of Institutional Structure, pp. 47-48.

⁴J.F. Yardley, "The Space Transportation System: A Public Investment - A Public Utility," Business Week, 25 September 1978, special advertising sec.,

need to lower installation costs and to ensure ready access for maintenance. The second principle is that the degree of competitive advantage enjoyed by any given operation using the same major technology(s) is related to differences in their territory and/or the conditions specified in their public wayleave franchises or private right-of-way contract(s). New block(s) of circuits are installed either to prevent competitive entry and/or whenever a forecast indicates that traffic peaks will exceed the key facility capacity within a given territory or trunk line.

The third operating principle is that the degree of comparative advantage enjoyed by a given major technological development is related to unique characteristics in its traffic circuits. In the case of satellite communications, there are three features. Over a certain range, cost is not related to distance. The number of parties which seek to interconnect is not a factor for *point-to-multipoint* distribution of radio and television signals¹ but it is an important one for *point-to-point* distribution of other telecommunications services.² Lastly,³

The satellite is a very high fixed cost system and a very low variable cost, whereas the microwave system it is a high variable cost and a very low fixed cost.

p. 18. Communications satellites will be launched from the National Aeronautics and Space Administration (NASA) shuttle towards their geostationary orbits at a distance of about 23,000 miles from the Earth.

¹ Canada, Department of Communications, Relationship Between Common-Carriers and Those Engaged in Broadcasting, p. 84.

² Idem, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 34, p. 1692.

³ Idem, Proceeding No. 35, p. 1774.

Historically, terrestrial systems have been geared to incremental or in the lexicon of the communications industry - *overbuild* - expansion. This statement will not be nearly so valid when wire and wireless circuits are replaced by fibre optic technology. For example, a line of microwave towers with a capacity of 2400 voice circuits was erected from Montreal to Vancouver between 1952 and 1958. By 1969, it had been overbuilt to 12,000 voice circuits with an estimated maximum design capacity of 18,000. That year, Bell Canada was experimenting with a waveguide device (prototype of a fibre optic cable) and pulse-code modulation which would yield an estimated capacity of 480,000 voice circuits.¹

Space systems would install capacity in blocks of about 600 voice circuits or more (see Supplementary Exhibit C1) with each successful launch and operation of a satellite. On the one hand, the risk connected with a space system is orders of magnitude greater than with the existing terrestrial ones. On the other hand, the profit and losses can increase rapidly with television traffic volume and revenue changes on either side of the break-even point.

¹Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Minutes of Proceedings and Evidence, No. 37 (Ottawa: Queen's Printer, 1969), pp. 1875-1876.

Nothing happens of any consequence unless the parties which were involved in the exchange of signal(s) can translate the encoded message. The fourth operating principle is that a limiting factor on the size of the traffic volume is the presence of a single language and/or code. This guideline explains why the UK, USA and Canada were logical countries for various consolidation schemes.

The fifth operating principle is a conditional one. As long as one individual, organization or consortium owns and/or exercises policy-making and administrative control over the peripheral equipment, exchange and/or medium which links them together, unilateral actions are not only possible but also legitimate under normal conditions. In the event that one or more of these components in a given circuit, system or network cannot be controlled, then bi- or multi-lateral negotiations are a prerequisite for effective system planning of key facilities.

Before the advent of cable television and satellite communications, the main distinction between traffic operations was between one- and two-way communications.¹ Broadcasting stations and networks specialized in the production and/or distribution of radio and/or television programmes. Common carriers generalized in the distribution of every kind of signal for the most part. What other criteria do the concepts and principles introduced so far provide for a greater understanding of the control mechanisms which effect and separate organizations?

¹Canada, Parliament, Parliamentary Debates (Commons), 1st session, 30th parliament (1974-75): 3760.

(c) Common carrier classification

By design¹ or chance, a legal definition of a common carrier has not yet been recorded in a Canadian law.² In the past, this problem has simply been avoided by using lists as shown in Supplementary Exhibit D1. What parameters are there which can be used to characterize and distinguish these kinds of organizations?

If the ability to resist competitive entry is selected as the paramount feature of organizational vitality, a number of inferences can be drawn. A network can be stronger than a single station. The application of this territorial criteria to common carriers is however too simplistic. A *long-line specialist*³ can be more profitable than an inter-connected system of regional operations and local exchanges but it is susceptible to the loss of large customers. Where the end-user doubles as operator and peripheral equipment is leased rather than sold, a fully-integrated common carrier (see Supplementary Exhibits E1-4) is superior to any others which only have similar traffic volumes.

The operational adoption of satellite communications posed a double threat. It could have an impact on existing broadcasters and common

¹Baldwin, History of the Telephone in the United Kingdom, pp. 43, 45. The Exchequer Division of the High Court of Justice declared in 1880 that the Edison telephone was a telegraph as defined in the U.K. Telegraph Acts of 1863, 1868 and 1869. The telephone companies were required shortly thereafter to obtain licences from the British Post Office and pay royalties.

²Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 42, p. 2199. Bill C-24 which was given first reading on 26 January 1978 does contain definitions.

³R.G. Aes, Letter from the general manager of the Alberta Government

carriers; especially, the ones whose revenues were heavily dependent upon network and/or long-line traffic. One possibility was that:¹

Domestic and international long-distance facilities could suddenly be made obsolete by a satellite system owned by other companies.

Another possibility was that satellite communications would merely: "... displace to a degree certain circuits ... or take the place of those which would otherwise be added."²

On the one hand, the domestic adoption of satellite communications could have an effect on federal-provincial relations since:³

Telesat, as a method of communications ... is an exercise in federal jurisdiction, which could have an impact on matters concerning the provinces, and even areas where they have provincial jurisdiction.

Commercially, the threat was greatest for the private broadcasters and the domestic telegraph consortium. The superior distribution facilities of community antenna operators could be linked into networks.⁴ Large organizations which relied upon computers could link their offices into

Telephones to the secretary general of the Canadian Radio-television and Telecommunications Commission, Edmonton, Alberta, 4 April 1977, (Mimeographed.) This official placed CN/CP Telecommunications into that category.

¹ Goulden, Monopoly, p. 118. The American Telephone and Telegraph Company (AT&T) is organized into two departments: Long-Lines and General.

² Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 38, p. 1977.

³ Idem, Minutes of Proceedings and Evidence, No. 39 (Ottawa: Queen's Printer, 1969), p. 2059.

⁴ CableSat Ltd., Letter of intervention from a lawyer to the secretary general of the Canadian Radio-television and Telecommunications Commission.

data exchange systems.¹

On the other hand, the domestic adoption might represent the:²

last strong federal mechanism which could be
used to restructure broadcasting in this
country;...
last tool to compensate for the great
distances and disparities;...
last opportunity to restore competition and
free enterprise to telecommunications
services.

A distinct possibility was the installation of specialized distribution facilities for the linkage of broadcasting stations and/or cable television systems into regional and/or national networks.³

In summary, these segments have highlighted several points. There is a lack of an explicit division of constitutional responsibility. A new market segmentation arrangement must be negotiated or decreed in order to cope with the hybrid forms of communications facilities. A *de jure* claim to authority may bear little resemblance to the *de facto* control actually exercised. The past inactivity, real will-power and existing leverage of the federal Cabinet yielded a considerable advantage to the telephone common carriers amongst whom the strongest may be Bell Canada.

Toronto, Ontario, 5 April 1977, (Mimeographed.) This company was chartered in 1975 under Dominion letters patent which empowered it to function as an intermediary or a common carrier.

¹ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 38, pp. 1977, 1985.

² H.H. Edwards, Letter of intervention to the Canadian Radio-television and Telecommunications Commission, Windsor, Ontario, 28 April 1977, (Mimeographed.)

³ Dow Jones, "Cable firms planning network by satellite," Globe and Mail, 1 June 1978, sec. 2, p. B3.

3. Central Hypothesis

13
The definition of the central hypothesis in this case study is that there is a low probability of direct control being shared on an equal basis, of influence being matched or of values being blended by the principals of the composite enterprise under review. As previously mentioned, the principals may be either active stakeholders and/or coalition members. In order to qualify for inclusion in the latter group, common shares must be held or the right to participate in boarding meetings must have been granted in some way.

The central issue of the status quo versus productive system planning of key facilities indicates two things. The most likely candidates for coalition membership were: the federal and provincial governments, general public, CATV operators, Telesat management, common carriers and broadcasters. Their respective vested interests are outlined in Exhibit 6.

The theoretical framework which was presented in Chapter One then refined in Chapter Two indicates that the validity of the central hypothesis can only be determined if two kinds of choices, ownership and control are examined. One set of criteria should include the selection of a role(s), allocation or prevention of majority ownership and policy-making control over outputs from the board of directors. Another set of criteria should include the productiveness of any system planning, allocation of satellite and earth station ownership, and administrative control over the approval of the capital expenditures for these key facilities and the allocation of their design/procurement contracts.

EXHIBIT 6
SATELLITE COMMUNICATIONS STAKES

Federal Government	Increase or preserve a capability to protect its chosen instruments
Provincial Governments	Increase or preserve their influence through the dominant forum for system planning and revenue sharing
General Public	Enormous capital gains and/or large dividend payouts from a capital-intensive, traffic operation which only distributes radio and television programmes with their instant and high capacity utilization
CATV Operators	Competitive entry as common carriers and/or link their local systems into regional and/or national networks
Telesat Management	Organizational survival or growth
Common Carriers	Prevent the organization of a specialized <i>long-line</i> operation until optic fibre technology obsoleted many of the comparative advantages of satellite communications
Broadcasters	Increase or preserve their advertising revenues and prevent a decline in the market value of certain privileges which have become rights, i.e. relatively interference-prone, off-air licences

SOURCES: Op. cit.

PART II

TELESAT CANADA AS A COMPOSITE ENTERPRISE:

A PRELIMINARY EVALUATION

CHAPTER 3: TELESAT CANADA - SECTORAL NICHE

Chapter Three sets out to describe the niche that was forged for Telesat Canada in the communications sector. It will be argued that the design of a special charter was part of a lengthy reorganization conducted by the federal government in response to the advent of hybrid communications facilities. It will be shown that there was a popular misconception about the exact nature of the quarrel between the common carriers and the Postmaster-General and Minister of Communications. It will be pointed out that the original intent may simply have been to incorporate Telesat Canada on an interim basis and as a political *stalking horse*.

Given the emphasis in the white paper on the complementary nature¹ of satellite communications, it would seem reasonable to presume that the Telesat niche would augment rather than conflict with existing government entities or privately-owned corporations. Consequently, the chapter is divided into three sections: 1962-78 reorganization of federal entities, proper role(s) and summary.

1. 1962-78 Reorganization of Federal Entities

Given that Telesat Canada was not created *ab nihilo*, it would seem

¹Canada, Department of Industry, Domestic Satellite Communication System, p. 12.

NOTE: Particular attention should be paid the singularity or plurality of certain terms and phrases such as: telecommunication(s), consortium(s), consortium, carrier'(s)' carrier and domestic satellite communication(s) system.

reasonable to presume that considerable forethought went into the design of its special charter¹ and any related statutory changes. Each provision theoretically should define some aspect of the original niche being fashioned for this enterprise (see Supplementary Exhibit F1).

As mentioned in the first chapter, the Gulick typology indicates that there are *four competing principles* which can be used to design or evaluate any given organization. The *purpose served* was described on several occasions as: "... to make communications available to every part of Canada."² The *processes employed* would be the specification, design, construction and/or procurement, operation and regulation of the satellite and earth stations.³ The *persons or things dealt with* are, in reality, the various stakeholder organizations which were listed in the previous chapter. The *area covered* corresponds to the territory encompassed by the Canadian border.⁴ A detailed examination of purpose and processes except for the regulatory one will be reserved for Part III so that this chapter can concentrate on the organizations dealt with and the territory covered.

¹Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 34, p. 1686. The TCTS worked closely with the CBC until the Satellite Project Office was set up. All of the approved telecommunications common carriers probably received copies of the draft(s) of Bill C-184.

²Idem, Proceeding No. 38, p. 2070.

³Idem, Department of Industry, Domestic Satellite Communication System, pp. 50, 58.

⁴Idem, Laws, Statutes, etc., Telesat Canada Act of 1968-69, sec. 5(1), p. 3.

The advent of satellite communications stimulated a wave¹ of statutory amendments and revisions which, in turn, highlighted important relationships and linkages between various organizations. Two new pieces of legislation reviewed during the 1968-69 session of Parliament were Bill C-184 (Telesat Canada Act) and C-173 (Government Organization Act). Under a portion of the latter's provisions, the existing post office and a new communications department portfolio were combined to form a novel portfolio: "... to make a single minister responsible for all government activities in the field of communications."²

Certain agencies would now:³

Report to parliament through the Minister of Communications ... the C.O.T.C., the Canadian Overseas Telecommunication Corporation; the Canadian Transport Commission, but specifically only that segment of the C.T.C. concerned with the regulation of telecommunications rates, and, once it is established by legislation, the domestic satellite corporation.

This portfolio, however, did not yet include the agencies which reported through the Secretary of State. Consequently, the government entities whose duties might bring them into cyclical or day-to-day contact with Telesat Canada would be: one or more parliamentary committee(s), the central agencies, the communications department, the above international

¹Canada, Parliament, Parliamentary Debates (Commons), 3rd session, 28th parliament (1970-72):1882. Momentum began to falter as early as 9 December 1970 with the introduction of Bill C-207 which sought to separate the postal and communications portfolios.

²Idem, 1st session, 28th parliament (1968-69): 6077.

³Ibid. An order-in-council (PC 1968-1305) had already transferred responsibility for wireless and broadcasting licences from the Ministry of Transport.

crown carrier, the broadcasting company and the regulatory commission(s).

(a) Parliamentary committee(s)

The bulk of the information about the standing committee(s) will be introduced in Chapter Four. One important point which should not be omitted at this time is that:¹

The estimates of the Post Office and those of communications formerly went to the committee on transport and communications.... The Post Office, communications, and C.O.T.C. have now been placed on the agenda of the Standing Committee on Broadcasting, Films and Assistance to the Arts.

On the one hand, there had been a simple change of venue from the Senate to the House of Commons. On the other hand, there had been a genuine consolidation of parliamentary scrutiny over telecommunications and broadcasting matters. These adjustments were important since they implied a general - perhaps sweeping - revision of government priorities (further details in Chapter 7).

(b) Central agencies

The justice department converted government policy into the provisions and clauses in the original charter, a 1972 letters patent amendment and other related statutory changes. The senior advisory counsel from this

¹Canada, Parliament, Debates (Commons), 1st session, 28th parliament (1968-69): 6082.

central agency explained the bill on a clause-by-clause basis and arranged for the drafting of any changes for the Commons standing committee which reviewed Bill C-184. Whenever the federal Cabinet required a legal opinion(s) on any given matter, the justice department would provide counsel.

Since federal investment in Telesat Canada would be at least ten million dollars¹ and federal involvement would encompass every aspect of satellite communications, provision was made so that: "... at least two members of the Board shall be from among the members of the public service of Canada."² Consequently, it would seem reasonable to presume that one of these appointees would be a senior official of the finance department. The Privy Council Office is traditionally used by the Cabinet as a link with but counter-force to the federal bureaucracy.³ Whenever Telesat Canada sought various approvals (details in Chapter 6) and/or the Department of Communications submitted Memorandum to Cabinet on the same matter, this central agency would clarify the issues and make recommendations. The resolution of any differences in their positions could be delayed or the outcome might be distorted by any attempt(s) on the part of the new

¹Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Minutes of Proceedings and Evidence, No. 29 (Ottawa: Queen's Printer, 1969), p. 1487.

²Idem, Laws, Statutes, etc., Telesat Canada Act of 1968-69, sec. 12(3), p. 8.

³S. Duncan, "Neutral rule of the agencies seems doomed," Financial Post, 2 April 1977, sec. 1, pp. 1, 4.

department to gain the status of a central agency.¹

(c) Communications department

Its operations were originally divided into; "... administration, planning and development, operations and regulation, research and development."² Responsibility for the Communications Research Centre was assigned to this ministry even before it was officially created. Two special linkages were subsequently forged between the laboratory, department and enterprise. One of these channels involves the assistant deputy minister (administration)³ who doubled as a provisional Telesat director. Another one involved the chairman of the advisory board on communications research⁴ who doubled as the only Telesat chairman to date.

Its mandate is outlined in Supplementary Exhibit G1. Two quotations have been selected from a couple of dozen different descriptions.

Collectively, they highlight a continuous search by the communications department throughout the 19⁷⁰s for a tenable niche and an acceptable

¹F. Howard, "Bureaucrats," Citizen, Ottawa, 10 October 1978, sec. 1, p. 2.

²Canada, Parliament, Debates (Commons), 1st session, 28th parliament (1968-69): 6078.

³Idem, Department of Communications, Communications Research Centre, Annual Report 1972-1973 (Ottawa: Department of Communications, 1973), p. 2.

⁴Canadian Press, "Telecommunications seen as key competitive area," Citizen, Ottawa, 2 September 1978, sec. 2, p. 23.

interpretation of its role. An early report states that it helps:

"... ensure that all Canadians obtain access to a rapidly expanding range of communications services."¹ A recent public accounts report states that it should:²

Foster the orderly development and operation of communications for Canada in the domestic and international spheres plan, establish and manage telecommunication facilities and services that will satisfy the requested needs of federal departments and agencies on an economic basis.

Consequently, it would seem reasonable to make two presumptions. These shifts in emphasis were related to the success or failure of a particular operational aspect (details in Chapter 8). The mandate was a sweeping - perhaps transitional one³ - which deliberately allowed for temporary or sustained encroachment into the affairs of almost every other agency in this policy field.

(d) International crown carrier

The mandate of the unregulated⁴ Canadian Overseas Telecommunication

¹Canada, Department of Communications, Annual Report 1971/72 (Ottawa: Information Canada, 1972), p. 1.

²Idem, Receiver General, Public Accounts of Canada 1977, vol. 2: Details of Expenditures and Revenues (Ottawa: Department of Supply and Services, 1978), p. 2.3.

³"Cabinet debating the future of 5 Government ministries," Globe and Mail, 5 December 1977, sec. 1, p. 8.

⁴Canada, Parliament, Debates (Commons), 1st session, 28th parliament

Corporation (COTC) is outlined in Supplementary Exhibit H1. Until the early 1950s, the capacity distribution of trans-Atlantic cable facilities on the basis of duplex voice circuits was: Western Union (22½), Commercial Cable Company (9½) and COTC (2).¹ In 1953, the international crown carrier participated in a consortium² which laid the TAT-1 cable. Seven years later, the federal government authorized an investment of twenty-five million dollars as the COTC share in a multi-purpose coaxial cable between Vancouver, New Zealand and Australia.³

Two important changes were made in 1963. Henceforth, the international crown carrier would function as a recognized operating agency on certain committees instead of acting as a representative of the Government of Canada.⁴ Bill C-112 enlarged the board and authorized participation with

(1968-69): 6091. Until the proclamation of Bill S-5, cabinet approval was necessary for any expenditure by the COTC greater than \$50,000. Afterwards, the Governor in Council could specify a threshold figure by order-in-council.

¹Canada, Parliament, Parliamentary Debates (Commons), 3rd session, 22nd parliament (1956): 6740.

²Idem, 1st session, 22nd parliament (1953-54): 3597, 2229-31. Bill 30 was passed in 1953 then Bill 212 was passed in 1956 but not proclaimed for several years. These amendments sought to alter the Telegraphs Act of 1875 such that the Commercial Cable Company would not seek to land a submarine cable with a capacity of 120 duplex voice circuits. One objection was that ITT had arranged for considerable U.S. military traffic to be sent over this facility (Code Name: Project Deepfreeze). These amendments shielded the TAT-1 being laid by the British Post Office; AT&T, Eastern Telegraph and Telephone Company (ET&T); and COTC whose estimated share of the investment was \$4,500,000.

³Idem, 3rd session, 24th parliament (1960): 675-6.

⁴Idem, Department of Communications, International Role, p. 8. These United Nations committees are: the International Radio Consultative

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A

nations outside the British Commonwealth.¹ When Canada became a charter member of the International Telecommunications Satellite Consortium (INTELSAT) in 1964, the COTC was ready to become the designated operating agency.² Four years later, this investment totalled four million dollars.³ Although this realignment prevented a conflict of interest similar to the COMSAT one, it generated an internal one between competing technologies.⁴ In May of 1969, COTC executives testified that: "... it is cheaper to go by cable, because the cable facilities are full - and our overflow traffic is now going on satellite ..." ⁵ (see Supplementary Exhibits H2 and H3).

They also indicated that the international crown carrier would neither

Committee (CCIR) and the International Telegraph and Telephone Consultative Committee (CCITT).

¹ Canada, Parliament, Parliamentary Debates (Commons), 1st session, 26th parliament (1963): 5090-1.

² R.W. Tritt, "The International Telecommunications Satellite Organization (INTELSAT): A Case Study in the Evolution of an International Operating Agency," M.A. Thesis, Carleton University, 1971, p. 19.

³ Canada, Parliament, Debates (Commons), 1st session, 28th parliament (1968-69): 4816-7. The investment share was 3.5 per cent and based upon traffic guesstimates. The maximum investment forecasted was \$7,000,000.

⁴ R. Steklasa, "World anger over U.S. trans-Atlantic veto: *We shouldn't rely upon unproven technology*," Financial Post, 11 March 1978, sec. 1, p. 11. The COTC was renamed Teleglobe Canada in 1975. The company joined a consortium of American and European common carriers which proposed to lay a trans-Atlantic cable (TAT-7) and its share of this facility would be 400 duplex voice circuits.

⁵ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Minutes of Proceedings and Evidence, No. 33 (Ottawa: Queen's Printer, 1969), p. 1659.

be investing in the proposed enterprise nor leasing domestic satellite circuits. Yet, a series of related changes were effected between 1971 and 1972 which rendered one of these presumptions invalid. The federal government authorized the investment¹ of thirty-seven million dollars in the CANTAT-2 cable which would be laid from Cornwall to Nova Scotia.² A Telesat vice-president was appointed to the COTC presidency. Shortly thereafter, the international crown carrier finally agreed to lease an R.F. channel from Telesat Canada (details in Chapter 8).

A letters patent application was approved in 1972 which amended Section 5(1) of the Telesat Canada Act of 1968-69. Under certain conditions,³ satellite circuits could be arranged between locations in Canada and outside the country even though the first communications minister testified that:⁴

We are part of the Intelsat consortium and I do not think any of the other nations in that body would accept it very graciously if we decided unilaterally to make Telesat into an international carrier.

¹Canada, Parliament, Debates (Commons), 3rd session, 28th parliament (1970-72): 4673. Substantial trans-Atlantic rate reductions were announced by the Minister of Transport one year earlier.

²United States, Federal Communications Commission, Opinion, Order, Authorization and Certificate No. 75-924, Washington, D.C., July 1975, p. 986. The official landing points for trans-Atlantic cables is either New York or Montreal. This FCC ruling authorized AT&T to lease CANTAT-2 circuits.

³Canada, Telesat Canada, "Desk Book: By-Laws of the Company," Ottawa, Ontario, March 1978, (Mimeographed.) By-Law 19 specifies that any changes are subject to appropriate inter-governmental arrangements.

⁴Idem, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 41, p. 2149.

That month, the federal and U.S. governments entered into a conditional agreement. A Canadian domestic satellite communication(s) system could extend assistance to an American one or visa-versa under four conditions.¹ There had been a catastrophic failure. There was a temporary shortage of on-line back-up circuits. One system was available before the other one(s).² Only one of the antenna could cover a particular peripheral region.

Consequently, it would seem reasonable to draw two inferences. The Canadian investment in INTELSAT was a token gesture, perhaps simply to garner the international prestige of charter membership. The U.S. - Canadian border had been given a special status³ in that it was being classified as a form of continental demarkation rather than an international one.

(e) Broadcasting company

The largest potential users of domestic satellite circuits were the common carriers and the Canadian Broadcasting Corporation (CBC). A vital difference between them would be that the former would be allowed to acquire Telesat shares while the latter would be denied that privilege.

¹United States, Federal Communications Commission, Memorandum, Opinion, Order and Authorization No. 74-1418, Washington, D.C., December 1974, p. 409. This agreement was recorded in the U.S. State Department. Bulletin Vol. LXVIII No. 1754.

²Canada, Telesat Canada, Annual Report 1972 (Ottawa: Telesat, 1973), p. 5. Two serious prospects were: RCA Global Communications Inc. and American Satellite Corporation.

³Litvak, Maule, and Robinson, Dual Loyalty, pp. 23, 195-225.

(further details in the next two chapters).

The CBC will not be investing directly in this Corporation at all. Its role in the Corporation will be to pay certain rentals on the channels.¹

When the broadcasting company executives appeared before the Commons standing committee, they almost immediately specified that the leasing of three channels for the distribution of French-language programmes to the west coast, English-language programmes into the North and time delay transmissions was based upon two conditions. Namely,²

(1) That the Corporation will be given the required amounts in public funds to enable it to establish the necessary ground stations in the North and also across Canada in centres of French-speaking population, and

(2) that the Corporation will be given the necessary public funds to pay for the costs of program delivery.

(f) Regulatory commission(s)

"Until the regulatory duties in this policy field were combined in 1975, different bodies were responsible for two- and one-way communications. The telecommunications body functioned under a series of names: the Board of Railway Commissioners (1906-38), Board of Transport Commissioners (1938-67)

¹ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 42, p. 2188.

² Idem, Proceeding No. 35, p. 1748.

and Canadian Transport Commission (1967-75). The cumulative record resembles that of an early American agency¹ but covers another forty years. One critic declared that:²

The office ... might just as well be at the head office of the CPR or Bell Telephone because that board has never done very much to protect the interests of the ordinary people.

The federal government even admitted that there were serious deficiencies. On one occasion, the House of Commons was advised that:³

Telecommunications legislation and regulation as it now exists is, to a considerable degree, unco-ordinated, and in certain areas, inadequate. Much of this existing legislation developed as a by-product of transportation considerations.

On another occasion, it was told that:⁴

The implementation of this federal jurisdiction in terms of legislation has been I think it is fair to say, rather limited.... If the government's regulatory structure is not geared to keep pace with these changes, both in terms of competence and basic philosophy, then logical, well-planned and orderly development will be impeded.

¹H. Kootnz and R.W. Gable, Public Control of Economic Enterprise, pp. 225, 264-5, quoted in H.E. English, ed., Telecommunications for Canada (Toronto: Methuen, 1973), p. 220. In 1934, the U.S. government introduced a bill which set up the Federal Communications Commission (FCC) to replace the Interstate Commerce Commission. In 1978, the federal government tabled a similar legislative consolidation when it introduced Bill C-24.

²Canada, Parliament, Debates (Commons), 2nd session, 28th parliament (1969-70): 689.

³Idem, 1st session, 28th parliament (1968-69): 6080.

⁴Idem, 2nd session, 28th parliament (1969-70): 685.

In the broadcasting segment, the regulatory bodies were: the Canadian Radio Broadcasting Commission (1932-6), CBC directors (1936-58), Board of Broadcast Governors (1958-67) and Canadian Radio - Television Commission (1967-75). This segment has been described rather aptly as:¹

A constant battleground. As long as radio and television remain important influences in our lives, and as long as vital financial and ideological stakes are involved, broadcasting will continue to be the cause of much controversey.

The record here is different. When the CRTC was set up in 1967, the federal Cabinet was authorized to issue directives. For example,²

The first guidelines... was designed to bring back to Canada certain radio and television stations, and cablevision companies. The purpose of the second was to force cablevision companies to reserve a channel for educational television and another for community television. The third as applied to educational television, gave the provinces authority, if they themselves were creating independent corporations for this purpose, to hold broadcasting licences.

The Commons standing committee was advised in 1969 that Telesat Canada could not be regulated by either of these bodies under existing federal statutes and that either an amendment or a new act would be required.³

Three pieces of evidence can be gleaned from these hearings which further

¹A.A. Shea, Broadcasting The Canadian Way (Montreal: Harvest House, 1963), p. 4.

²Canada, Parliament, Parliamentary Debates (Commons), 1st session, 29th parliament (1973-74): 2882.

³Idem, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 38, p. 2011.

clarifies the exact status of this enterprise. The first communications minister testified that licences to install and operate domestic satellite circuits would be required since:¹

It would fall within the jurisdiction of the Radio Act. But this is only a stop gap measure.... I can give the Committee an assurance that the regulatory legislation will be in effect by the time Telesat Canada starts transmitting.

A common carrier executive testified at different times in one of the hearings that:²

In the public interest there must be what one might call a national policy of telecommunications. This new technology must be phased in to the existing network in the common interest....

When we talk about competition we are shifting the problem. The problem is total control....

It is not the lack of competition that is the price to pay for the protection of the interest of the public, but rather a coherent set of rules and regulations....

Only if there is a total regulation of TELESAT's operations within the framework of a national policy. Otherwise TELESAT will not survive economically.

A provincial official testified that the Alberta Government Telephones, at least, would: "... accept outside regulation as a part of the Canadian family communication company."³

¹ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 39, p. 2051. In the past ten years there have been four communications ministers: Kierans, Stanfield, Pelletier and Sauvé.

² Idem, Proceeding No. 36, pp. 1828, 1838, 1843, 1844.

³ Idem, Proceeding No. 38, p. 1984.

During the last hearing of the Commons standing committee, the first communications minister predicted that a bill which would permit more comprehensive regulation of telecommunications would be: "... ready to present to the House by the fall of 1970, which will be one year before the satellite goes up."¹ During the next session of Parliament, the federal Cabinet found it expedient to introduce an amendment² and a policy change. One adjustment contained in Bill C-11 was that:³

Previously, under the Railway Act, the Canadian Transport Commission regulated the telephone and telegraph rates only if a charge was made to the public. Recent amendments extend the jurisdiction of the CTC over rates charged for private wire services.

Another adjustment was specified by a change in the wording and content of Section 320(1) in the above statute. The definition of the term *company* was enlarged such that it encompassed not only charters related to railways but also any Dominion ones related to telephony and telegraphy (see Supplementary Exhibit II)..

A year later, an interim policy was announced whereby licences for new communications services using microwave relays would be evaluated on social and economic grounds as well as the traditional technical ones.⁴

¹Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 42, p. 2001.

²Idem, Parliament, Debates (Commons), 2nd session, 28th parliament (1969-70): 685.

³Idem, Department of Communications, Annual Report 1969-1970 (Ottawa: Information Canada, 1970), p. 17.

⁴United States, President's Task Force on Communications Policy,

Ostensibly, this approach should:¹

Make it easier for the federal government to perform more effectively its function of co-ordinating national telecommunications policy with provincial requirements and programs of provincial development.

Two green papers² and a series of federal-provincial meetings over the next three years failed to produce any meaningful concessions by either party.

Consequently, the next significant statutory change did not occur until 1975. When Bill C-5 was passed that year, it reorganized existing federal regulatory bodies. The Canadian Radio-television and Telecommunications Commission (CRTC) was formed since:³

It is imperative to entrust the different aspects of telecommunications to a single regulatory agency in order to ensure the harmonious development of ... new techniques, in a manner compatible with the best interests of Canadian citizens.

Several important points should be highlighted. Under the provisions in Section 320(5) of the Railway Act of 1903, the common carriers do not have to file for tariff rates⁴ and the Commission does not have to hold a

Final Report (Washington, D.C.: U.S. Government Printing Office, 1968), sec. 9, p. 32.

¹ Canada, Parliament, Debates (Commons), 2nd session, 28th parliament (1969-70): 3503.

² Idem, Department of Communications, Proposals for a Communications Policy: A Position Paper of the Government of Canada (Ottawa: Information Canada, 1973) and Communications: Some Federal Proposals (Ottawa: Information Canada, 1975.)

³ Idem, Parliament, Debates (Commons), 1st session, 30th parliament (1974-75): 3760.

⁴ Canada, House of Commons, Standing Committee on Broadcasting, Films

hearing. Is Telesat Canada subject to its regulation? Given that the enterprise is neither a telephone nor a telegraph company, the matter is unclear. Perhaps it has remained so throughout the past decade on account of statutory limitations and other restrictions on recourse to the courts (further details in the next chapter). The solitary intervention by the CRTTC was undertaken after Telesat Canada had been declared an associate company of the crown railway one,¹ at the request of the enterprise² and under the provisions³ in Section 320(11) of the Railway Act of 1903.

Based just upon the material selected for inclusion in this section, the incorporation of Telesat Canada seems to have been only part of a much larger scheme whose earliest manifestations can be traced back to 1962. Two pieces of evidence support this presumption. A provincial official testified that by mid-1969 fear and mistrust had almost reached ~~walking~~ proportions.⁴ The committeeman who was later appointed as the second communications

and Assistance to the Arts, Proceeding No. 37, p. 1913. In mid-1969, Bell Canada had already executed *dozen of arrangements* with CATV operators but tariffs had not been filed since regulation was only suppose to replace competition under certain circumstances.

¹Op. cit. See page 20.

²G.D. Hutchison, "The definitive story on the Telesat/TCTS affair," in search 5 (Spring 1978): 16-21.

³Canada, Canadian Radio-television and Telecommunications Commission, "Decision," Ottawa, Ontario, 24 August 1977, Telecom Decision 77-10, (Mimeographed.) The Cabinet varied this disapproval with an order-in-council (PC 1977-3152) pursuant to Section 64(1) of the National Transportation Act of 1968-69.

⁴Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 38, p. 1976.

minister stated in the House of Commons that:¹

The federal government is engaged in a protracted struggle to preserve - not only preserve, but to increase - the federal authority in some fields.

What was the essence of the common carrier reaction to this unstable situation? What *tried-and-true* solution could they advocate which would prevent them from being caught between these governing bodies?

2. Proper Role(s)

As soon as Telesat Canada was set up, relationships could begin to firm up² or would emerge which would for the most part be shaped by one or more roles. Each one would adopt and/or create a set of norms which collectively specify the detailed parameters of reasonable and legitimate behaviour within the communications policy field.

The section is divided into segments which correspond to the main roles which were debated; namely: common carrier, carrier's carrier and carriers' carrier.

(a) Common carrier

The impression that Telesat Canada might operate in competition with

¹Canada, Parliament, Debates (Commons), 2nd session, 28th parliament (1969-70): 2822. Stanfield was the second communications minister.

²Idem, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 41, pp. 2114-5. The Satellite Project

existing common carriers was created by vague - even contradictory - statements in the white paper. Section 16 entitled: "A Canadian satellite communication corporation" states that:¹

The revolution in communications, which the introduction of a domestic satellite represents, should initiate even further development of long-distance communication technology.... The availability of as many competitive means of long distance transmission as possible is an advantage to the telephone companies, to the broadcasters, and consequently, to their customers. Competition between technologies, as well as competition between supplying companies, usually generates lower prices for the user. It also ensures maximum versatility in the services offered to the public.

Section 1 declared that: "... no satellite system envisaged could operate, with maximum benefit, without being extensively linked into existing and future terrestrial systems."² More specifically,³

The system would permit the introduction of ... television service to any remote area, including the North, which cannot be economically served by conventional systems. It would also provide telephone service to many of the same areas, and it would supplement the transmission of television, telephone and data service over the long-distance routes covered by microwave networks.

Several inferences can be drawn from these selected descriptions. The federal government was about to organize either a replica of or a replacement for the telegraph operations of the railway companies. The possibility of a

Office of the communications department committed Telesat Canada to the preparation of the definition phase by RCA Victor Limited.

¹ Canada, Department of Industry, Domestic Satellite Communication System, p. 46.

² Ibid, p. 12.

³ Ibid, p. 70.

common carrier which would specialize in the distribution of radio and television had already been rejected but on dubious grounds.¹ By so doing, the federal government discarded its main source of leverage which could be used to counter-act the growing forte of the telephone companies - interconnection.

The competition controversy became a matter of public concern when the first communications minister stated in the House of Commons that:²

The corporation will operate as a complement, not as a competitor, to the common carriers. Except in the instance of the CBC and of certain possible purchases of a complete, undivided television channel on a sustaining basis, the sole customers of the corporation will be the common carriers.

The telephone companies reacted swiftly and proposed an amendment to Section 5 in Bill C-184 which would legally restrict any future rentals.

The introductory remarks of the TCTS executives made the common carrier position quite clear.

It has been the definite understanding of the common carriers that the basic function of the Corporation would be to provide satellite channels to the common carriers and the Canadian Broadcasting Corporation... we are prepared to see this enlarged to include other federal and provincial departments and agencies requiring the use of a complete, undivided channel on a sustaining basis.

¹Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 37, p. 1879. Later on, a Bell Canada executive testified that the only permanent use for satellite circuits would probably be television distribution since they were far more useful for one-way than two-way communications.

²Idem, Parliament, Debate (Commons), 1st session, 28th parliament (1968-69): 1496.

³Idem, House of Commons, Standing Committee on Broadcasting, Films

During this hearing, these executives also pleaded that exclusiveness in the matter of leasee(s) was necessary for two reasons. In the past, the common carriers had provided efficient and low cost services of every kind.¹ In the future, "... one telephone system is the best answer for a country in order to assure the ability of instant and efficient connection."² And,³

The real benefit will come if mining and all of these other things develop there. If you want to open the North, this is the thing to look forward to from satellites, the complement is in this direction, but to think of replacing the total East-West communication by satellites is an impossible thought because by the basic nature of the system it is not practical.

Several attempts were made to clarify the federal position. In one hearing, a senior public servant testified that:⁴

The statement of the Minister that Telesat would not be in competition, reflects the policy of the government that Telesat should operate in such a way that it would form a cohesive part of the telecommunications system in this country.

In the next hearing, another bureaucrat testified that:⁵

There is no problem as far as I can see, unless they decide not to go in. There is no problem about one of these channels being rented to a competitor. There is none whatsoever.

and Assistance to the Arts, Proceeding No. 34, p. 1679.

¹ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 34, p. 1678.

² Ibid, p. 1718.

³ Ibid, p. 1726.

⁴ Idem, Proceeding No. 38, p. 2005.

⁵ Idem, Proceeding No. 39, p. 2070. Six R.F. channels were planned:

This statement seems to suggest that the entire matter was merely a *tempest-in-a-teapot*. During the last hearing, an assistant deputy minister testified that: "... the potential for serving the needs of Canadians wherever they may be ... That is the point of improving it."¹

The members of the Commons standing committee focused on one phrase in Section 5 for guidance in this matter. What does: "... on a commercial basis ..." ² signify? The most pertinent portion of the dialogue is quoted below:³

Mr. Osler: Commercial to me means fully commercial and an alternate system...

Mr. Krupski: No, the Minister has interpreted the word, *commercial* as meaning making a profit.

One final piece of evidence can be gleaned from the testimony of a provincial official who declared that: "... a fourth national common carrier is not warranted or can it be supported by the economy."⁴ A later statement strikes towards the heart of this matter and foreshadowed actual events (details in Chapter 6). The dialogue reads as follows:⁵

CBC (3), TCTS and CN/CP Telecommunications (2) and Bell Canada experiments (1).

¹ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 42, p. 2195.

² *Idem*, Laws, Statutes, etc., Telesat Canada Act of 1968-69, sec. 5(1), p. 3.

³ *Idem*, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 38, p. 1965. The four trans-continental channels were: CN/CP Telecommunications, TCTS, TCTS/Québec-Téléphone and Telesat Canada. The latter two were being arranged in mid-1969.

⁴ *Idem*, Proceeding No. 38, p. 1965.

⁵ *Ibid*, p. 1987.

The Chairman: But do you see it as a potential competitor under certain given circumstances?

Mr. Reiersen: Under certain circumstances, particularly if public shareholders or investors were brought in right at the outset and a set of circumstances developed, then of course it could happen.

The TCTS amendment was officially withdrawn several hearings later.

A letter was read into the record and the salient part is, as follows:¹

In restating Telesat Canada's role as a complement, not a competitor to the common carriers, Mr. Kierans observed that it would be inequitable to invite such companies to compete against themselves... a stipulation in a contract to reflect the above intent would satisfactorily resolve the matter.

More than a postponement of what was the proper degree of leasee exclusiveness had occurred. There had also been changes in the control mechanism and venue. Instead of statutory provisions subject to parliamentary debate and public scrutiny, there would be *in camera* bargaining sessions and *confidential* arrangements.²

(b) Carrier's carrier

By 1967, the American regulatory agency had ruled that COMSAT must function as a carrier's carrier³ (see Glossary) even though this meant the

¹ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 41, pp. 2122-7.

² *Idem*, Parliament, Debates (Commons), 2nd session, 28th parliament (1969-70): 1253.

³ United States, Communications Satellite Corporation, Annual Report

violation of a:¹

Long-standing public policy that one type of carrier cannot own another - i.e. barge lines and railroads are prohibited from holding an interest in trucking firms and airlines.

In their second brief to the transport minister, the common carriers had recommended in the section entitled: "Corporate Financial Structure" that:²

The Corporation should function as a wholesaler of satellite channels - e.g. TV channels - to the Telecommunications Companies or to other regulated users.

When the author of a *secret* PCO study³ on financing and share ownership appeared before the Commons standing committee, he testified for only a short time, under stringent conditions and with careful supervision by that committee's chairman. This Canadian banking executive offered the opinion that it should be possible for anyone to rent a full

to Shareholders (Washington, D.C.: COMSAT, 1975), p. 5.

¹Goulden, Monopoly, p. 133.

²Trans-Canada Telephone System and CN/CP Telecommunications, "Considerations and Recommendations," p. 6.
NOTE: This page number is arbitrary since at least one leaf concerning points 1 through 4 were missing from the document supplied by CN/CP Telecommunications.

³Canada, Parliament, Debates (Commons), 1st session, 28th parliament (1968-69): 7496, 7527. It was written by the deputy chief general manager of the Bank of Nova Scotia (Dr. R.M. MacIntosh).
NOTE: A request was made in June of 1976 for access to this document through proper channels but before the research program had uncovered its controversial nature in Hansard. The PCO declined to release this study on the grounds that this kind of precedent would undermine the premise of a great deal of the work done in that central agency. Remarks must remain - more or less - confidential in order to get individuals to be candid about any given subject, organization or person.

channel and to deal with a third party.¹ Given the existing agreements in principle² to lease the R.F. channels on the first satellite and the lack of an explicit statement in the special charter, the carrier's carrier role could remain an option until these contracts were signed and executed by the federal government, Telesat management and common carriers.

(c) Carriers' carrier

The quotation below is a rare direct reference to the option whose covert selection (details in Part III) would explain the resignation of the first communications minister.³

While Mr. Kierans strenuously resisted the desire on the part of the common carriers to designate Telesat as a *carriers' carrier* during the pre-incorporation negotiations, he did assure them that Telesat would not become a retailer of telecommunications services in direct competition with them. Telesat acts as a wholesaler of radio frequency channels on its satellites, dealing with customer organizations whose requirements call for the use of one or more whole RF channels.... Customers requiring use of less than a full RF channel may negotiate such use through the appropriate common carrier.⁴

¹ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 38, p. 1943.

² Idem, Proceeding No. 35, p. 1753.

³ Idem, Parliament, Debates (Commons), 3rd session, 28th parliament (1970-72): 5339. The Prime Minister made the announcement on 29 April 1971.

⁴ Golden, "Anik - Experience With a Domestic Communications Satellite Serving the Public," p. 2.

The keynote item in the quotation on the previous page is that ministerial resistance may have ceased - for any number of reasons - once Bill C-184 was proclaimed (further details in Chapter 5).

In their first brief to the transport minister, the common carriers specified a consortiums' consortium as their ideal satellite organization. Given that federal participation was mandatory, the ideal role would be the carriers' carrier one. In the first instance, the problem of a proper role was superfluous. In the second instance, it would be quickly resolved if the common carriers could obtain a majority of Telesat common shares or votes on the board of directors. By chance or preference, one item was overlooked by almost everyone. The reliance upon contractual stipulation(s) implicitly condoned any one of the three main roles discussed in this section.

3. Summary

The first section documented a lengthy and widespread reorganization aimed at increasing federal authority in the communications policy field. The second section traced the common carrier position from advocacy of the consortiums' consortium to the role of the carriers' carrier. Woven into the testimony of the telephone executives and provincial officials was the lure of another and different chosen instrument. Specifically, a *Canadian family communication company* might be the ideal solution to the central issue of the status quo versus productive system planning of key facilities.

As mentioned previously, hybrid communications facilities threatened to nullify the traditional barriers within this sector.¹ Without government intervention on a larger scale, only one forum would survive.² Without co-ordination between the governing bodies and co-operation with the common carriers, the victory would be a *Pyrrhic* one. Except for the gaps and duplications of effort in the regulatory process, the main criticism of the status quo by the federal government was that:³

Although a commendable degree of co-ordination and standardization has been achieved by TCTS since its formation in 1931, there has in the past been little opportunity for expression of the public interest, in a national sense, in the orderly development of telephone systems in Canada.

A joint instrument could be forged on an incremental basis. Its preparation would ensure gradual reduction of constitutional conflict, containment of commercial competition and consistency in the overseership of the distribution of every kind of signal. Could such an organization be legitimized? Was Telesat Canada or the TCTS the answer? Were they merely precedents?

What would be the *quid pro quo* for cabinet support of a consolidation

¹Beigie, "Economic Framework," in Telecommunications, ed. English, p. 38.

²J. Marshall, "Phones, TV, mail on single system called inevitable," Globe and Mail, 25 April 1978, sec. 1, p. 5.

³Canada, Department of Communications, Communications Policy for Canada, p. 7.

by the approved telecommunications common carriers?

The amendment suggested by Trans-Canada Telephone System seems to contemplate that those who are listed in Appendix A of the Bill shall be the common carriers forever and that there will be nobody else who will be able to expand into that business.

One concession might be support for some - perhaps all - of the jurisdictional claims of the federal government (see Supplementary Exhibit G4). Another concession might be representation on the dominant forum for system planning and revenue sharing, albeit the TCTS, Telesat Canada and/or something new.

¹ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 36, p. 1843.

CHAPTER 4: TELESAT CANADA - MODAL OPTIONS

Chapter Four sets out to describe the modal options which were lauded by the active stakeholders, theoretically granted by Parliament under the provisions included or omitted in the enabling act and actually delegated to the federal Cabinet under the rubric of tripartite ownership. The chapter is roughly divided into a section on the keynote statements made before Bill C-184 was proclaimed, a second one on the provisions contained in the Telesat Canada Act of 1968-69, and a third one on the capitalization restrictions inherent in satellite communications which determined which modal options could actually be organized.

1. Pre-Proclamation Statements

The original submission by Niagara Television Limited and Power Corporation of Canada proposed a partnership of broadcasters, common carriers, federal government and general public.

NTV - A National Television Network -
A public company formed to provide
a complete full-color national television
network with new transmitters coast to
coast, utilizing already existing but idle,
frequencies, both VHF and UHF

CANSAT - The Canadian Satellite Corporation -
A public company to build, launch and
utilize a Canadian Domestic Space
Satellite System.

¹Niagara Television Limited and Power Corporation of Canada,

Given that the Power Corporation prefers *reverse takeovers*¹ and that the common shares would have been dispersed amongst a broad cross-section of the general public, the original proposal implied a double threat. There was a distinct possibility that one party or institution could gain direct control over a majority of the directors on the boards of both companies. There was a faint one that all ninety-seven surplus television channels² would actually be given to the proposed programme production company. As discussed in the previous two chapters, one of the strongest tenets in the communications policy field has been the separation of telecommunications and electronic media operations. Therefore, it would seem reasonable to assume that the original proposal was designed to stimulate and channel public debate and private lobbying effort.

The next suggestion was made by the Science Secretariat and involved: "... the establishment of a central co-ordinating and contracting agency for space research and development." This proposal was later expanded and modified by a new federal advisory body; specifically:⁴

20. The Science Council recommends the appointment of a Board of Directors drawn from industry, the universities, and the public service,

"Proposal for a Canadian TV Network and a Domestic Space Satellite Distribution System," sec. 1, p. 2.

¹Newman, Canadian Establishment, pp. 64-5.

²Niagara Television Limited and Power Corporation of Canada, "Proposal for a Canadian TV Network and a Domestic Space Satellite Distribution System," sec. 2, pp. 3-4.

³Canada, Privy Council Office, Science Secretariat, Upper Atmosphere, p. 110.

⁴Idem, Science Council, Space Program, pp. 6, 9.

responsible as an agency or corporation to the appropriate Minister of the Crown....

29. The Science Council of Canada has examined several proposals that would establish specific policies relating to research and to the technological development of space facilities, their provision, use and control.... believes that their further consideration is the function of the proposed central space agency.

This document contains the first public reference to the participation of senior public servants on the board. The almost wholesale delegation of policy-making duties displayed a certain naivety about Canadian politics, in general, and this sector, in particular. Consequently, it would seem reasonable to assume that this proposition merely sharpened the negotiations about which parties should be eligible ones.

As mentioned previously, the common carriers described the ideal satellite organization as an unincorporated and essentially unregulated consortiums' consortium.

The eight major telephone companies ... together with the telecommunications branches of Canada's two principal railways, undertake to establish and maintain a Canadian communications satellite system, and to operate it in conjunction with radio relay and other terrestrial facilities in meeting present and foreseeable Canadian domestic telecommunications needs. ¹

To-reiterate, one of their most basic policy positions is the necessity of a fully-integrated system(s). If traffic estimates were used as the basis²

¹Trans-Canada Telephone System and CN/CP Telecommunications, "Canadian Communications Satellite System," p. 2.

²J.T. Kildow, INTELSAT: Policy-Maker's Dilemma (Lexington, Mass.: Heath, 1973), p. 49.

of investment, the federal government would hold a minority interest through the Canadian National Railway Company (CNR). In that case, only statutory provisions could ensure direct control over the proposed domestic satellite communication system (details in Chapter 6).

The response of the consortia to an apparent public rejection in the white paper of their consortiums' consortium proposal was another brief to the transport minister. It outlined a composite enterprise that only had two major coalition members; specifically:¹

Principal share allotments should be assigned to the Government and to the Telecommunications Companies. Other allotments might eventually be offered to the general public,...
5(a) There should be joint ownership of the Satellite Corporation on an all-equity basis.... the Telecommunications Companies should participate fully with the Government in ownership of the Corporation.

Clearly, the COMSAT design whereby directors were appointed by executive order without capital investment by the U.S. government was unacceptable. There was also a definite preference for exclusive ownership. Was this plea related to the corporate veil of secrecy² which traditionally shielded *in camera* negotiations on system planning and revenue sharing matters?

At least in part, the counter-proposal by the federal government was deliberately vague in order to retain bargaining power. For example,³

¹Trans-Canada Telephone System and CN/CP Telecommunications, "Considerations and Recommendations," pp. 4, 6.

²Telesat Canada *et al*, "Memorandum of Understanding," Ottawa, Ontario, 31 December 1976, (Mimeographed,) clause 6(e), p. 4.

³Canada, Department of Industry, Domestic Satellite Communication System, p. 70.

Having carefully considered the relative merits of public and private ownership of satellite facilities, the Government will propose that a corporation be formed by special statute of Parliament....

The Government will propose to encourage private participation in the Corporation and to this end will initiate discussions with the interested parties. The pattern of ownership needed to maintain effective Government control in those matters involving national interest will emerge from these discussions.

In one sense, the use of a special charter represented a regression to the pre-1890s and the advent of general laws of incorporation.¹ In another sense, it was a traditional method for a *de facto* extension of jurisdiction.² The federal government seemed to promise more than a crown company yet less than a privately-controlled subsidiary. A timetable was not outlined, the interested parties were not specified and the secret PCO formula for share distribution had not yet been released to a parliamentary committee.³ In reality, the only firm commitment was to conduct more discussions.

Shortly after his motion to introduce the enabling bill and special charter, the first communications minister stated that:⁴

¹A.D. Chandler, Jr., Strategy and Structure: Chapters in the History of the Industrial Enterprise (Cambridge: M.I.T. Press, 1962), p. 30.

²Canada, Department of Communications, Proposals for a Communications Policy for Canada, p. 13.

³Idem, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 38, pp. 1925-59.

⁴Idem, Parliament, Debates (Commons), 1st session, 28th parliament (1968-69): 7491.

The type of corporation proposed is unique in this country. It goes beyond the precedent set by the Panarctic Corporation in this country and by COMSAT in the United States by combining into a single entity three interests or groups.

The unique element vis-à-vis the Panarctic allusion would be equity investment by the general public. The novel feature vis-à-vis the COMSAT one would be capital stock purchases by the federal government.

Four pages of transcript later, this minister clarified the ownership issue when he stated that:¹

A third possibility, which had been proposed is that barring sole ownership by the common carriers the system should be restricted to a joint partnership of common carriers and government. This possibility we have also rejected.... public participation will ensure accountability to the public at large rather than merely to those parties directly interested in the venture.

A further elaboration was then offered:²

It has been our conclusion throughout that share ownership of the three parties should be approximately equal and that in the case of none of the parties should it fall below 30 per cent.... No single shareholder in the public sector may hold more than 2½ per cent of the total shares issued by the corporation. This provision is designed to promote the widest possible share ownership while at the same time permitting institutions with a direct interest in the corporation to acquire a measureable share ownership.

Were these *institutions* the various underwriters which had already approached

¹Canada, Parliament, Debates (Commons), 1st session, 28th parliament (1968-69): 7495.

²Ibid, p. 7496.

the first communications minister¹ and/or the five ones which held the largest percentages of Bell Canada shares?²

During the next day's sittings, Opposition members commented upon the minister's introductory remarks. Using hindsight, one of their most astute observations was that: "... the same difficulties which arose with the Bank of Canada will plague an organization with this three-legged stool."³ During a Commons standing committee hearing, the senior advisory counsel from the justice department testified that:⁴

The legislation is drafted in such a manner that there is no firm commitment to a tripartite share ownership or to a dual share ownership.... The fact that the carriers did not come in would mean that there would be authority in the Governor-in-Council to delete their names from Schedule A.

One of the committee members remarked during the next hearing that he wished that:⁵

The Minister would be somewhat more frank ... about his reasons for not having this a completely public corporation.... there is a great conflict of interest between the aims of the government, the aims of the common carriers, and the aims of the individual

¹ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Minutes of Proceedings and Evidence, No. 40 (Ottawa: Queen's Printer, 1969), p. 2122.

² Idem, Department of Communications, History of Regulation, p. 32.

³ Idem, Parliament, Debates (Commons), 1st session, 28th parliament (1968-69): 7537.

⁴ Idem, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 40, pp. 2093-4.

⁵ Idem, Proceeding No. 41, p. 2127.

investors.... If it were a public corporation the complete responsibility and its accountability to the public would be laid at the door of the government, as I think it should be in this particular case.

These comments generate more questions than answers. The description of the proposed organization in these selected quotations seems long on rhetoric and short on specifics. On the one hand, tripartite ownership would somehow ensure accountability to the general public (details in the next chapter). On the other hand, at least one committee member had reached almost a prophetic conclusion that: "... the arguments about the technological advantages of bringing in the common carriers are not really that solid."¹ Exactly what options were proffered by the provisions for tripartite ownership in the Telesat Canada Act of 1968-69?

2. Enabling Act

A number of questions will be examined in this section. What prerogatives and duties did Parliament retain? What special discretionary powers were given to the Telesat board? What keynote concessions were made to the common carriers? Which options were viable ones and what responsibilities were delegated to the federal Cabinet? Answers will be presented in the following segments: parliamentary prerogatives, cabinet discretionary powers and summary.

¹ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 41, p. 2128. Other possibilities were that their presence would ensure a sharing of costs, responsibility and accountability; would prevent conflict; and would provide voluntary

(a) Parliamentary prerogatives

Section 31 of the special charter contains the most explicit prerogative in that Telesat Canada must not be wound up without the consent of Parliament. Section 33 permits the annulment of any letters patent approved by the designated minister which seeks to alter the objects, powers and/or share capital. But, Parliament must act within the fifteen-day-period after that elected official tables the relevant documents in the House of Commons and/or the Senate.

Several constraints were included which seemed to ensure parliamentary intervention in the foreseeable future. As a senator pointed out:¹

It must be remembered that the satellite of today will be obsolete tomorrow.... the amount the federal Government puts into the satellite should be limited, otherwise we will find ourselves with another C.B.C., with unlimited financial help from the Government.

Section 10 specifies a ceiling to the authorized capital in the form of ten million common and five million preferred shares. This constraint is doubly deceptive. The absolute limit in monetary terms might extend from about fifty millions to over a billion dollars since it would depend upon whether market forces, underwriters or an edict was used to set the price. Sections 40 and 41(4) specify a maximum federal investment in the common and preferred

interconnection. The only systemic failure on the Anik Is occurred in a receiver manufactured by Northern Electric Company, a subsidiary of Bell Canada.

¹Canada, Parliament, Debates (Commons), 1st session, 28th parliament (1968-69): 1685-6.

shares of thirty millions and total loans or guarantees of forty millions. Parliamentary intervention could, however, be forestalled by the deployment of indirect subsidies (details in Chapters 6 and 7) and/or reliance upon a distorted cost of capital¹ to enhance earnings.

Section 37 ensures that there would be a reminder of the enterprise's existence and performance. Once a year, the designated minister must table copies of the financial statements and report of an auditor from the private sector. At this point, the chairman of the Public Accounts Committee reviews these documents and:²

That gives him the opportunity then, if there are things that he does not like in it, to demand that they appear before him.... but the House could also decide in its wisdom that it refer it to this committee.

An amendment³ to Section 3 which would have ensured that the chairman of this standing committee was appointed to the Telesat board was defeated. Another amendment to Section 12(2) which would have ensured that at least one of the directors was an elected parliamentarian was also defeated.⁴

¹"In business this week: Finance - Comsat's offer," Business Week, 28 November 1977, p. 46. In 1977, COMSAT offered to buy back 1,500,000 common shares only after the Federal Communications Commission (FCC) had ordered the company to do so on the grounds that it had an excessively low debt/equity ratio and the U.S. courts had upheld that decision.

²Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 41, p. 2146. Under the provisions of Standing Order No. 43, a unanimous consent of the House of Commons is required.

³Ibid, p. 41-5.

⁴Idem, Proceeding No. 38, p. 2021.

Mounting criticism¹ of the apparent lack of parliamentary scrutiny and inadequacy of cabinet control over crown corporations prompted several changes. The most pertinent one for the case study under review is a statute² which was recently passed. It would permit but not require the Auditor-General to review the Telesat statements and auditor's working papers on his own initiative, at the request of the Governor in Council or upon receipt of a query from the Public Accounts Committee chairman.

Were there any special discretionary powers granted to the Telesat board? The Commons standing committee offered three keynote observations³ about Section 17(1)(d) which authorizes the directors to set their own level of remuneration. It was improper for public servants to be paid a bonus for simply doing their duty. The wording of the clause was different than the standard one for crown corporations. The usual payment was about one thousand dollars. Estimates of the actual remuneration paid out over the past decade are listed below:

1970	700
1971	700
1972	1,100
1973	1,500
1974	2,000
1975	3,000
1976	3,100
1977	2,900

The noteworthy items are the threefold excess in payment and the cutback

¹S.E. Gordon, "Uneasy lies the head that wears the Crown corporation," Financial Post, 3 January 1976, sec. 1, p. 7.

²Canada, Laws, Statutes, etc., Auditor General Act, R.S.C. 1976-77, c. 34, sec. 7(d), p. 3.

³Idem, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 40, p. 2096.

after Telesat Canada joined the TCTS (details in Chapter 8).

The Commons standing committee also expressed some doubts about Section 29. Its members were advised that the Telesat board was granted discretion over the amount of commission for the underwriting of shares since Part IV, Section 16 of the Canada Corporation Act would be set aside.¹ Lastly, Section 35 delegated the right to expropriate land under conditions² similar to the ones specified for the international crown carrier. One important exception is that there was not an explicit statement of recourse to the Exchequer Court of Canada concerning compensation claims.³

What about the common carriers? An important concession was that the common carriers would be allowed to make periodic adjustments for differences in traffic growth. When the first communications minister introduced the amendment to Section 20(3)(4), he testified that without this change:⁴

The effect of any transfers ... would be to reduce the carriers' share in favour of an increased share in the hands of the persons who fulfill the statutory conditions ... Only the public people who fulfill the statutory conditions could increase their proportion under this clause.... The effect of the amendment... is to give the other carriers in the event of one carrier desiring to make use of this clause - a right of first refusal on the

¹ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 40, p. 2102.

² Ibid, pp. 2107-9.

³ Idem, Laws, Statutes, etc., Canadian Overseas Telecommunication Corporation, R.S.C. 1949, c. 42, s. 1, sec. 11(1)(2)(3), p. 6.

⁴ Idem, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 40, p. 2098.

shares that the one carrier proposes to divest himself of.

The inclusion of the amendment once again enlarged the discretionary powers of the federal Cabinet. Was the original draft of this section one of many *sacrificial* bargaining points?

(b) Cabinet discretionary powers

Section 10(2) merely requires that there must be tripartite ownership of the domestic satellite communication system. In other words, some sort of mixed enterprise should be organized. Within that context, there is a host of alternatives since the number of common shares held by either the Minister of Finance, approved telecommunications common carrier(s) or eligible person(s) may range from 1 to 9,999,998.

Given that the federal Cabinet views itself as the guardian of the national interest in this case, then the alternatives where its ownership would range from 1 to 3,333,332 can be discarded. Four options emerge as the most probable ones. Firstly, the common shares could be issued - in whole or part - on an equal basis. The potential problems of a voting deadlock could be reduced by the passage of by-laws for the election of a neutral chairman¹ and for other provisions which would protect specific prerogatives.

¹Archer, History of Radio, pp. 227-39. The *Four-Party-Pact* provides an appropriate model. A large quorum and/or a majority vote of greater than two-thirds could have been specified.

Secondly, the shares could be issued primarily to the Minister of Finance. The statutory requirements for tripartite ownership could then be accommodated by an approved telegraph common carrier (CNR or CPR) and an eligible person each holding one share. This technique would fulfill the *letter of the law* but not the *spirit* of the enabling act. Provision had been made so that there was just enough funds to cover the estimates for a domestic satellite communication system.¹ The unique feature here is the organization of a crown corporation or a mixed enterprise rather than a composite one. The dialogue below supports this interpretation:²

Mr. Schreyer: So, we could have Crown ownership without any amendment to the legislation.

Mr. Gibson: I believe that is correct, yes.

Mr. Macquarrie: You would still leave the section in that says that this is not a Crown corporation, and so on?

Mr. Gibson: Yes. That is a matter of policy, sir. In those circumstances the government might see fit to amend the bill. On the other hand, legally speaking there would be no requirement that the bill be amended.

Thirdly, the shares could be issued equally to the Minister of Finance and approved telecommunications common carriers with an eligible person holding one share.

Assuming for the moment that the federal Cabinet could exercise direct control over the domestic satellite communication system, there is a fourth option. Given the possibilities for reorganization by order-in-council and

¹ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 42, p. 2188.

² Idem, Proceeding No. 40, p. 2094.

the expertise within a federal laboratory for the assembly of satellites,¹ Sections 6(1)(c), 6(1)(g) and 38(2) allow for the formation of a fully-integrated common carrier (see Supplementary Exhibit E1). Co-ordination would be provided by the federal Cabinet and a covey of policy-oriented agencies: Prime Minister's Office, PCO, Departments of Justice, Finance and Communications. Telesat Canada could be assigned responsibility for other federal agencies (e.g. Canadian National Telecommunications) or visa-versa.²

Based upon the analysis so far, it can be seen that the federal Cabinet had been granted wide latitude. This managerial body could exercise direct control over the designation of a proper role(s). It would retain considerable influence until the share subscription formula was approved and perhaps even until the initial batch of leases were executed.

(c) Summary

Section 34 by itself declares that Telesat Canada is neither an agent of Her Majesty nor a crown corporation as defined in the Financial Administration Act.³ Schedule I lists thirteen approved telecommunications common

¹Canada, Department of Communications, Communications Research Centre, Annual Report 1972-73, p. 14.

²Idem, Treasury Board Secretariat, Financial Administration Branch, "Government-Owned and Controlled Corporations," p. 29.

³Idem, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 41, pp. 2167-77. This explicit statement denied recourse to the Exchequer Court of Canada.

carriers (see Supplementary Exhibit D1) and Schedule II restricts ownership by non-residents to twenty per cent in total and by eligible persons or provincial governments to two and one-half per cent per party. These three provisions taken together confirm that a uniquely-Canadian composite enterprise (see Exhibit 3) might be organized.

The addition of Section 10(2) supports this interpretation but adds the edict of tripartite ownership. As highlighted in Exhibit 7, this new paragraph provided for considerable discretion since the timing and proportion of any issue(s) of capital stock would be determined by: "... the Board of Directors, with the approval of the Governor in Council."¹ Were there other restrictions on the organization of the main modal options uncovered in this segment?

3. Capitalization

The practical alternatives available to the federal Cabinet for the organization of the proposed domestic satellite communication system were masked by a complex enabling act and buried under a barrage of sometimes contradictory statements in the House of Commons and to the press. The initial attempt to clarify this matter will utilize three categories of capital: debt, preferred shares and common ones.

¹Canada, Laws, Statutes, etc., Telesat Canada Act of 1968-69, sec. 10(2)(c)(iii), p. 7.

EXHIBIT 7

PRE-PROCLAMATION PROPOSALS FOR THE DISTRIBUTION OF TELESAT COMMON SHARES
(per cent)

Party	Niagara Television Limited and Power Corp. CANSAT Proposal	Confidential Privy Council Office Formula	Minister's Statements and TCTS Brief to Commons Committee
General Public	60.0	40.0	33.3
Government of Canada	#	30.0	33.3
Common Carriers	#	30.0	33.3
Broadcasters	#		

total for these three parties is 40.0 per cent

SOURCES: Niagara Television Limited and Power Corporation of Canada, "Proposal for a Canadian TV Network and a Domestic Space Satellite Distribution System," Ottawa, Ontario, 25 October 1966, (Brief) and Canada, Parliament, Parliamentary Debates (Commons), 1st session, 28th parliament (1968-69): 7496, 7527.

(a) Debt

The capital stock of COMSAT was originally restricted to common shares which were issued at twenty dollars a piece but the demand was so great that they had to be: "... parceled out in lots of 5 to 10 shares."¹ The first communications minister talked about a debt/equity ratio of one-to-two for Telesat Canada. Apparently, the grounds for this target were that:²

The electric utilities have carried between 55 per cent and 60 per cent debt; while the telephone utilities have carried around 40 per cent debt. The American Telephone and Telegraph carried close to 33 or 35 per cent for quite a number of years ... the Trans-Canada System ... just under 49 per cent.

Why was there such a discrepancy in the approach to the organization of two similar composite enterprises?

One plausible explanation can be gleaned from the testimony of a Canadian banking executive.

The problem is you cannot be sure the capital assets will work, and therefore, that there is any income at all.... Given that situation, the concept of debt in order to lever the position of the common shareholders, I think is questionable.³

¹"In business this week: Finance - A buyback for Comsat," Business Week, 19 December 1977, p. 36. The stock rose sharply then settled back to \$37 per share.

²Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 37, pp. 1888-9.

³Idem, Proceeding No. 38, pp. 1926, 1927.

The one thing which would nullify this prognosis was that: "... as soon as you put on the government guarantee, you change it into a government obligation."¹

Two other pieces of evidence further clarify this situation. A provincial official testified that: "... the Government of Canada's participation in this, is automatically an assurance."² A federal official indirectly supported this interpretation during a later hearing.

This is an equity situation basically,.. but it depends on how you use the word *risky* here. In my opinion, it is not something you can call a risky venture because it is a declared policy of the government ... that this satellite go up.³

Given that mortgage and *take-or-pay* contracts were unfeasible⁴ and that the policy which prohibited crown corporations from the use of warrants would also apply in this case,⁵ unsecured debentures might be issued. These securities are:⁶

Usually issued in \$1,000 denominations ... and that would perhaps, put them beyond the reach of most Canadians.... They can be issued at a slightly higher cost, mainly for printing and so on, in \$100 denominations.

There was a potential, two-pronged problem in that a given common carrier

¹Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 38, p. 1938.

²Ibid, p. 1990.

³Idem, Proceeding No. 41, p. 2157.

⁴Idem, Proceeding No. 38, pp. 1925-6.

⁵Idem, Proceeding No. 40, pp. 2104-5.

⁶Idem, Proceeding No. 41, pp. 2157, 2158.

traditionally dealt with a particular financial institution(s)¹ and:²

There is very little competition in the underwriting or financial houses with which a large corporation like Bell,... does business.

While banks are for the most part prohibited from holding the common shares of their customers, common carriers could not purchase: "... debt obligations of other corporations except under special conditions."³ Based upon the evidence presented so far, it would seem reasonable to draw one conclusion. The *secret* MacIntosh Report⁴ had probably predicted that considerable difficulties would be encountered with the financial community on this matter and that coercion would be necessary before the enterprise itself could secure a line of credit.

(b) Preferred shares

The conversion⁵ of preferred shares into common ones was prohibited.

¹ L. Sandler, "How big investment dealer hustled for prize Bell Canada underwritings," Financial Post, 30 September 1978, sec. 1, p. 5. The Bank of Montreal was the lead manager for Bell Canada issues until forced to relinquish its position by public pressure. The A.E. Ames & Co. of Montreal held it until the mid-1970s.

² Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 41, p. 2158.

³ *Idem*, Proceeding No. 38, pp. 1928-9.

⁴ J. Chapman, "The Development of Policy for Domestic Satellite Communications," Speech delivered by an assistant deputy minister of the Department of Communications to the American Institute of Aeronautics and Astronautics, Los Angeles, California, 6 April 1970, (Mimeographed.)

⁵ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 40, p. 2118.

The reason given to the Commons standing committee was that this change could expose Telesat Canada to takeover bid(s) at a time, which might place one or more parties at a distinct disadvantage. Without this feature, preferred shares probably would have to be issued as part of a package deal involving common ones.¹ This subject was the source of some concern as the dialogue below indicates:²

Mr. McCleave: Do you anticipate any trouble in selling fixed income non-convertible Telesat securities.

Mr. Kierans: Let me put it this way: I anticipate less difficulty than Dr. MacIntosh has suggested.

Section 10(3) is another important factor since their issuance must be:³

Authorized by by-law sanctioned by at least two-thirds of the votes of the shareholders cast at a special general meeting of shareholders called for the purpose.

The first communications minister elaborated on this threshold figure, as follows:⁴

I believe that two-thirds of the vote is standard... I am reluctant to expand it beyond two-thirds because ... you are really going to

¹ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 38, p. 1936.

² Idem, Proceeding No. 41, p. 2159.

³ Idem, Laws, Statutes, etc., Telesat Canada Act of 1968-69, p. 7. Articles 2, 3 and 5 of By-Law 1 require an order by the chairman, attendance by holders of 10 per cent or more of the outstanding shares and written notice sent by mail 14 clear days in advance of the special general meeting.

⁴ Idem, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 41, p. 2155.

be controlled by an even smaller minority who might oppose all change.

Given that premium rates would be mandatory and since any of the three parties could veto an issue, the use of this medium cost of capital device was most unlikely.

(c) Common shares

The analysis so far indicates that the crucial source of venture capital would be common shares. An awareness within the central agencies of this constraint and its implications¹ can be inferred from the provision for an interim and permanent board in Section 12(1) and (2). In other words, the federal government would probably remain the only source of debt until two things happened. The proposed domestic satellite communication system had been successfully placed into regular service. An acceptable level of profit (details in Chapter 6) had been recorded and/or ensured by annual earnings guaranteed by contractual arrangements.

By September of 1968, the first communications minister had already been approached by various underwriters. At that time, he initiated a series of discussions with the author of a *secret* PCO study. When this Canadian banking executive testified before the Commons standing committee, he

¹Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 40, p. 2121.

²Op. cit. See page 99.

suggested that caution should be exercised in this matter since: "... if you sell equity to people, presumably you make it clear to them that they earn a risk asset."¹

What alternate courses were open to the federal government for an issue to the general public? The first communications minister testified that: "... the public and the investment community are extremely interested."² The Canadian banking executive had already predicted that:³

The persons who are underwriting the distribution of shares ... would be anxious to secure a reasonable number of directorships for persons who fulfill the statutory conditions in order to make these shares saleable.

Based upon traditional relationships and the historical record, these directors would probably vote with the common carriers.

It would appear that the federal government was confronted with a dilemma since:⁴

One of the conditions of a successful marketing operation will be that reasonable provision will be made for directorships for the people who will hold these shares.

Was an entirely different and lower cost route⁵ needed as an alternative or supplement? By chance or design, just such a distribution system was being

¹Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 38, p. 1931.

²Idem, Proceeding No. 41, p. 2156.

³Idem, Proceeding No. 38, p. 1931.

⁴Idem, Proceeding No. 40, p. 2122.

⁵Canadian Press, "Bell Canada share issue largest ever in Canada," Citizen, Ottawa, 10 January 1979, sec. 2, p. 33. In 1922, Bell Canada issued 50,000 common shares with a par value of \$100 directly to the general public.

readied for the "Put Your Name in Space/Mettez Votre Nom en Orbite" contest.¹

On the one hand, the first communications minister testified that:²

It is strictly on the margin and the balance remains between the two major contributors, assuming of course that the other shareholders are going to be diversified, and we intend to ensure that this happens.

On the other hand, an Alberta official testified that: "... only a small percentage of Canadians could, in fact, become shareholders."³ If a package deal or five-share-lots were specified, the relative dispersion might have been:

Telesat Canada	1,000 or less - 666,666
Québec-Téléphone	3,139
Bell Canada	225,000
Alberta Government Telephones	900,860

A special kind of dispersion would be necessary in order to allow as many eligible persons as possible to participate, to maximize accountability to the general public and to ensure tripartite equity balance.

As documented in Chapter Two, the common carriers must be treated as equals. Assuming that the federal government was not contemplating the

Half a century later, the company planned to pay the underwriter fees and issue directly 2,350,000 common shares in order to prevent excessive returns and retain the prestige and constituency of Canada's most widely-held company.

¹ Canada, Senate, Standing Committee on Transport and Communications, Minutes of Proceedings and Evidence, No. 10 (Ottawa: Queen's Printer, 1969), pp. 155-6. This contest would find a name for the Canadian satellite and entry forms would have been collected at Post Offices, railway and airline ticket counters, common carrier offices and RCA record stores.

² Idem, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 41, p. 2155.

³ Idem, Proceeding No. 38, p. 1968.

replacement of the telegraph operations of the railway companies with satellite communications facilities, this legal constraint meant one thing. The one-third-split outlined in Exhibit 7 was misleading since the common carrier portion included the future holdings of the federal crown railway company.¹ The existence of this dilemma can be inferred from the attempt to amend Section 5 which was abandoned in exchange for an agreement in principle by the first communications minister that:²

The voting power will be determined as a result of agreement between the company, the government and the carriers.

Either an agreement must be reached or a decree issued which specified the exact ownership proportions and thereby established: "... the relative power on the board."³ As one telephone executive had already warned, failure to do so would be disastrous since: "... if there is no total control of Telesat operations, ... this undertaking is doomed from the start."⁴

Consequently, the federal government seemed to be headed towards the organization of either a crown corporation or a complex enterprise⁵

¹ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 34, pp. 1731-2.

² Idem, Proceeding No. 40, p. 2118.

³ Idem, Proceeding No. 38, p. 1939.

⁴ Idem, Proceeding No. 35, p. 1838.

⁵ Idem, Department of Communications, The Relevance of United States Legislative - Regulatory Experience to the Canadian Telecommunications Situation, Prepared by D.W. Smythe, Telecommission Study 1(e) (Ottawa: Information Canada, 1971), Footnote 14, p. 34. Western Union told the FCC in 1943 that it was taking 10-15 years to renegotiate any given contract with a railroad.

encumbered by contractual safeguards. How could the general public fulfill their responsibilities¹ and elect directors? How would the federal Cabinet overcome the formidable obstacles presented in this chapter?

¹Canada, Parliament, Debates (Commons), 1st session, 28th parliament (1968-69): 7493.

CHAPTER 5: TELESAT CANADA - POLICY-MAKING CONTROL

Chapter Five sets out to test the validity of the central hypothesis relative to the specification of a proper role(s), the existence of majority ownership rights and the exercise of policy-making control. Whether or not anyone can prove ownership of and/or deliver the proxies for more than fifty per cent of the common shares or votes during the special or general meeting of the Telesat board will be ascertained. Under this unique condition, a number of crucial changes occur. This party would not only accrue most of the majority ownership rights but also could gain direct control over policy outputs, role specification and budgetary approvals of capital expenditures. Control could be exercised through the candidates which this party would nominate for appointment *during pleasure* and/or for election to a *one-year-term* on the board of directors.

In the event that this matter is not absolutely clear, other mechanisms will be evaluated by which a given party could rally sufficient votes under certain conditions. An interim label will be selected for Telesat Canada and thereby a presumption will be offered about whether or not this organization posed a threat to traditional system planning prerogatives and existing revenue sharing arrangements. The chapter consists of two sections: actual organization and central hypothesis.

1. Actual Organization

Section One seeks to answer three questions. Did the financial framework forged for Telesat Canada require new negotiations with each successive generation of key facilities, allow for entrepreneurial growth or necessitate inactive coexistence? What was the stock subscription formula hammered out by the federal government and the common carriers? Why have common shares never been issued to the general public?

Answers will be presented in the following segments: financial basis, stock subscription formula, issue to the general public and summary.

(a) Financial basis

Three external factors had an effect on the organization of Telesat Canada. Ostensibly, federal investments in the domestic satellite communication system were impeded by budget constraints similar to departmental ones where the official policy emphasis in 1968-69 was on austerity.¹ The overall rate of return for Bell Canada was consistently exceeding the maximum permissive level² and the holding company had applied for an increase from 6.6 to 8.0 per cent. The annual earnings of the COTC (see Supplementary Exhibit H2)

¹Canada, Parliament, Debates (Commons), 1st session, 28th parliament (1968-69): 9808.

²Ibid, pp. 6427-8.

threatened¹ to become a source of embarrassment for the federal government. It was within this context and while the provisional directors held office during *pleasure* that the financial framework within which the domestic satellite communication system would function was constructed. Two main sources of funds were: other income and earnings from operations.

(i) other income

The federal government provided working capital for a two-year-period through a conditional advance² of ten million dollars. A provision³ in the enabling act was deleted and Vote L5 of Appropriations Act, No. 3, 1969 was substituted after the Commons standing committee hearings. One-fifth of these funds had already been committed to RCA Victor Limited for program definition while the Satellite Project Office⁴ was under the direction of the communications department (details in Chapter 8).

As outlined in Supplementary Exhibit K1, additional draws were required during 1972 and 1973. Telesat Canada borrowed a total of twenty-five million dollars under the provisions of an agreement whereby the

¹Canada, Parliament, Debates (Commons), 1st session, 28th parliament (1968-69): 6091.

²Idem, Telesat Canada, Annual Report 1969 (Ottawa: Telesat, 1970), Note 3, p. 9. The promissory notes were for \$500,000 @ 7 5/8% due 25 September 1970 and \$9,350,000 @ 8 1/8% due 11 November 1970. Pursuant to order-in-council PC 1969-1778, the Minister of Finance could extend these advances for one more year.

³Idem, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 40, p. 2094.

⁴Idem, Proceeding No. 39, p. 2085.

federal government guaranteed a line of credit up to thirty million dollars.¹ By the end of 1975, this enterprise had received a total of \$35,350,000 in loans, made re-payments of \$23,150,000 but still had an outstanding draw of \$22,850,000.² After cabinet approval in principle of the TCTS/T Agreement and while the denary review of the Bank Act was still subject to input from the communications department,³ arrangements were made for Telesat Canada to switch to a larger line of credit supplied by a Canadian chartered bank(s). Access to federal funds did not cease since government advances were, in effect, replaced with: "... prepayment of revenue for services to be provided during 1979 and 1980."⁴

The importance of federal assistance for fund and cash flow management is illustrated in Supplementary Exhibits J2 and J3. Based upon this material, it would seem reasonable to draw one conclusion. The first

¹ Canada, Telesat Canada, Annual Report 1972, Note 5, p. 19. The debt accrued in 1973 consisted of: \$4,000,000 @ 5 13/16%, \$1,000,000 @ 5 7/8% and \$6,500,000 @ 5 7/8%. The enterprise could draw upon this source of working capital until 1 August 1973.

² Idem, Parliament, Debates (Commons), 1st session, 30th parliament (1974-75): 10528.

³ Idem, Department of Communications, Annual Report 1975-1976 (Ottawa: Department of Supply and Services, 1976), p. 10. The amount received in 1977 was \$9,000,000. The loan rate was 9 per cent. The repayment schedule was: \$4,510,000 in 1978, \$248,000 in 1980, \$193,000 in 1981 and \$69,000 in 1981.

⁴ Idem, Telesat Canada, Annual Report 1977 (Ottawa: Telesat, 1978), p. 11. These payments were for future use of Anik IA-F-1 circuits in the 14/12 GHz frequency band.

half of the 1970s was an endless liquidity crisis for the Telesat management.

(ii) earnings from operations

Two points introduced in the third chapter are especially relevant to this portion of the analysis. Legally, the main source of income for Telesat Canada should be earnings from operations since the prime directive of Parliament is that the domestic satellite communication system must function: "... on a commercial basis."¹ Apparently, the main contributors or *approved* leasees of these circuits would be the CBC and the common carriers. These two presumptions are supported by the following statement:²

The addition of the right to sell a whole transponder to a large-scale user for his own need is really to make sure that the corporation will have the on-going possibility of adjusting to circumstances....
If for any reason the common carriers of Canada may wish to use the corporation only to a limited extent, or to take only a certain portion of the capacity, then the corporation ... can, nevertheless, find and sell to other customers ... Not to act as common carriers,.. but to use it for themselves.

Exhibit documents the commercial service agreements which have been executed to date for full, occasional and back-up service.³ The salient

¹Op. cit. See page 97.

²Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 38, p. 2004.
NOTE: Telesat Canada prefers the use of the *term service agreement* rather than *lease*.

³Idem, Telesat Canada, Annual Reports 1972-75. The CBC agreed to lease 3 full channels in July of 1972. The TCTS and CN/CP Telecommunications pooling arrangement was signed two months later. The Bell-Northern Research Ltd. agreement was reached in October of that year.

EXHIBIT 8

TELESAT CANADA SERVICE AGREEMENTS
(1973-81)

Customer	R.F. Usage	Channels Number	Commencement Date	Termination Date
Canadian Broadcasting Corporation	F	3	01/04/73	31/03/79
	O	1	01/06/74	31/03/78
	O	1	01/04/78	31/03/79
Bell-Northern Service #1	F	1	11/01/73	10/01/79
Bell-Northern Service #2	F	1	01/02/73	31/01/79
Participating Carriers	F	2	11/01/73	10/01/78
Special Assembly Tariff #2 - TCTS/Participating Carriers	F	2	11/01/78	10/01/79
Teleglobe Canada (COTC)	F	1	15/06/74	14/06/79
	O	1	01/06/76	30/06/81
RCA Globcom and RCA Alaska	F	1	20/12/73	31/05/75
	F	2	19/06/74	31/05/75
	F	3	16/10/74	31/05/75
	F	4	09/03/75	31/05/75
	F	5	04/05/75	31/05/76
RCA	B	1	01/07/75	31/08/78
	B	1	01/01/77	30/06/77
	B	6	01/07/77	30/09/77
	B	11	01/10/77	31/12/78

F full channel O Occasional use B Back-up service

NOTE: This list may not be an exhaustive one. Query(s) about service agreements with the federal Department of National Defence and/or the U.S. Defense Department were neither submitted nor information volunteered.

SOURCE: Canada, Telesat Canada, "Telesat Canada," Ottawa, 21 August 1978, (Typewritten.)

points are as follows. Reportedly, one rather odd condition was that:¹

Under the terms of the Telesat/CBC contract for the use of the satellite, CBC can only add to its satellite-fed network with Telesat's approval.

The COTC did become a customer of Telesat Canada contrary to the presumption of its executives.² The original contract entered into by the common carriers represented their second pooling arrangement³ and reflected their intent to act as a consortium's consortium. The two contracts with Bell Canada or its research subsidiary were for a term of five years plus a one year extension option which has been exercised. They reflected the statements and allusions⁴ during the Commons standing committee hearings that these channel(s) were experimental⁵ and/or military circuits.

Collectively, these service agreements raise two questions. What happens to the 6/4 GHz circuits once the 14/12 GHz ones are placed into regular service? Was the first generation of key facilities viewed by the

¹ G.D. Hutchison, "Telecast versus Teslin: Wherin the big satellite company takes on a small Yukon village," Financial Post, 27 March 1976, sec. 1, p. 13.

² Canada, Telesat Canada, Annual Report 1973 (Ottawa: Telesat, 1974), p. 3. Apparently, coercive - almost abusive - negotiations took place between the senior official(s) from the communications department and executive(s) from the international crown carrier.

³ Weir, Struggle for National Broadcasting in Canada, pp. 158-71. The telephone common carriers withdrew in 1936 after their portion of the revenue fell off sharply.

⁴ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 34, p. 1687.

⁵ Idem, Minutes of Evidence and Proceedings, No. 35 (Ottawa: Queen's Printer, 1969), p. 1753.

federal government and/or the common carriers as merely a full-scale pilot project?

The TCTS/T Agreement¹ prompted the withdrawal of CN/CP Telecommunications, guaranteed the profitability of Telesat Canada on a conditional basis² until the end of 1980 (see Supplementary Exhibit K1), and necessitated the replacement of the extension option with a new one-year contract for two 6/4GHz R.F. channels. Only one new customer from the private sector - RCA Corp. - has leased circuits on a full channel basis in the past ten years. By design or coincidence, that temporary client was also an active stakeholder throughout the decade under review (details in Chapter 8). A Telesat counsel responded to this kind of criticism levied during the regulatory hearings on the membership agreement above as follows:³

It is an unfair and unjustified statement based on all of the evidence to suggest that because Telesat had difficulties in marketing satellite services, it prefers to leave this problem to TCTS....

A co-operative marketing effort between Telesat Canada and the members of TCTS offers the best prospect of successful marketing.

What kind of organizations were large enough users of telecommunications services to qualify as potential leasees? One prospect was

¹Canada, Telesat Canada, Annual Report 1977, p. 11. A revenue increase of \$4,100,000 in 1977 was part of this agreement.

²Telesat Canada *et al*, "Memorandum of Understanding," clause 21, p. 10. The issuance of shares to the general public would trigger a *renegotiation of the settlement arrangements*.

³A.J. Hewitt, "Rebutal Argument," Ottawa, Ontario, 29 June 1977, (Mimeographed.)

mentioned during the Commons standing committee hearings.

IBM for example has announced that they are going to establish a system of computers across the country linked to one another by microwave or satellite communications.¹

Another prospect - almost an ideal one - was the focal point of a Telesat brochure which states that:²

Canadian companies could jointly distribute video/audio program material via a satellite distribution network employing Telesat's ANIK satellite....

The model assumes transmission from one location in Toronto and reception at 50, 75 or 100 locations across Canada.

The keynote item here is that the break-even point seems to be fifty earth stations (further details in Chapter 6). Yet, only about sixty vacant broadcasting frequencies³ were available and only one private network was in operation at this time.

Why was Telesat Canada unable or reluctant to secure any of these prospects? Was the considerable effort expended on the marketing function⁴ merely a token gesture or bargaining ploy? Several mutually inclusive presumptions can be made based upon the present progress of the analysis. Satellite tariffs may have been so high that only coercion would induce

¹Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 38, p. 1943.

²Idem, Telesat Canada, "Television Distribution Via Canada's ANIK Domestic Satellite," Ottawa, Ontario, 1974, (Brochure.)

³Op. cit. See page 28.

⁴Canada, Telesat Canada, Annual Report 1974 (Ottawa: Telesat, 1975),

participation.¹ Terrestrial tariffs may have been so low that competition was impossible since:²

The rates which the CBC and CTV television networks pay in Canada are substantially lower than those paid by any other network on the continent.

The domestic satellite communication system may have been designed in such a way that it was uneconomic³ for a wholesaler or end-user to install direct links to the first generation of satellites (further details in Chapter 6).

Exhibits 9 and 10 present the financial position of Telesat Canada at the close of each fiscal year since its incorporation. Two Anik I satellites had been in service for the better part of their design life-time⁴ by the end of 1975 (see Supplementary Exhibit [1]), yet two problems had been overlooked either by design or chance. The cumulative losses had only been reduced to the point where they equalled the original capital investment. Neither replacement costs had been provided for nor

¹ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 37, p. 1895.

² Ibid, p. 1882. These ten-year contracts were renewed in the mid-1960s.

³ Idem, Telesat Canada, "Data Transmission Via Canada's ANIK Domestic Satellite," Ottawa, Ontario, (Brochure.) Data services were made available by TCTS, CN/CP Telecommunications and Bell Canada. Otherwise, a 6/4GHz earth station had to be installed by the end-user and the cost written off over five years.

⁴ Idem, Annual Report 1973, Note 2, p. 17: The official service lives were: satellites (5 yrs.), earth stations facilities and equipment (12 yrs.) and other (10 yrs.)

EXHIBIT 9
CUMULATIVE LOSSES ACCRUED BY TELESAT CANADA

Year	Capital Stock '000	Initial Procurement Expenses '000	Earnings From Operations '000	Cumulative Total '000
1969		(3,163)		
1970	19,030	(6,580)*		(9,743)
1971	50,000	(30,186)*		(39,929)
1972	60,000	(36,891)*		(76,820)
1973	60,000		2,508	(74,312)
1974	60,000		6,929	(67,383)
1975	60,000		6,282	(61,101)
1976	60,000		3,147	(57,954)
1977	60,000		6,643	(51,311)

* Figures are conservative ones since the difference between interest earnings and costs could readily be calculated based upon the data in the 1970-72 annual reports

SOURCE: Canada, Telesat Canada, Annual Reports 1969-77.

EXHIBIT 10
SELECTED FINANCIAL DATA ON TELESAT CANADA

Year	Assets '000	Operating Revenue '000	Operating Costs '000	Retained Earnings '000
1969	11,532			
1970	20,249			
1971	54,790			
1972	84,790			
1973	101,326	18,975	16,467	5,341
1974	104,995	28,049	21,120	9,127
1975	110,391	31,129	24,847	11,372
1976	99,740	28,580	26,433	13,142
1977	113,420	34,053	37,410	17,706

SOURCE: Op. cit.

developmental costs¹ covered (details in Chapter 8). During the pre-TCTS/T Agreement period, the unforecasted income² provided by the COTC and the subsidiaries of RCA Corporation of New York ensured that the operating costs did not exceed operating revenues. Consequently, the federal government could claim that a profit had been earned ever since the Anik I-F-1 had been placed into regular service and questions in the House of Commons forestalled.

The dialogue below highlights an important policy change which is not reflected by these figures alone.

Mr. McCleave: Can the Minister suggest when he expects the Corporation would make its first dividend payment?

Mr. Kierans: I would think soon after the satellite is operating profitably.³

When the sums in Exhibit 9 and 10 are compared with the ones in Supplementary Exhibits J1 and J2, the dividend payouts which were begun in 1975 seem illogical, even counter-productive. The reason is that working capital was badly needed to finance replacement spacecraft and/or the next generation of key facilities.⁴ Federal tax-payments have been deferred ever since this enterprise showed a profit. (Are these dividends really a form of re-payment to the common carriers and federal government for investment in 6/4 GHz links and equipment which were obsoleted by 14/12GHz circuits?

¹Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 34, p. 1689.

²Idem, Minutes of Proceedings and Evidence, No. 31 (Ottawa: Queen's Printer, 1969), p. 1591.

³Idem, Proceeding No. 42, p. 2184.

⁴Idem, Telesat Canada, "Telesat Canada, Proposed Agreement With

By design or coincidence, the financial positions presented in Exhibits 9 and 10 match quite closely a prediction by a provincial minister.

It would be necessary to establish a rate level in order to cover the bare cost of keeping the situation afloat. If it were carried by the Government of Canada and the communications company, it would be a very clearly understood situation.¹

These figures also suggest that the dialogue below is equally pertinent.

Mr. Saltsman: But the point on financing of this or the book-keeping of this is completely a juggling operation.

Mr. Kierans: You would have to support that statement....

Mr. Saltsman: I am not suggesting that the juggling is the kind that the public auditor would be concerned about. I am talking about the level of the rates and how much you charge for them.²

Collectively, these exhibits starkly illustrate the importance of various government advances and certain service agreements. Assuming for the moment that *on a commercial basis* means earning a profit, then the estimates should have covered several items. A specific profit on ten million shares (details in Chapter 6), recovery of the cost of the first generation of key facilities and a write-off of the developmental costs should have been included. Since annual revenues were only suppose to be

Trans-Canada Telephone System: Rationale - Motivation - Alternatives," Ottawa, Ontario, 29 March 1977, (Mimeographed,) pp. 12-13.

¹Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 38, p. 1988.

²Idem, Proceeding No. 41, p. 2132.

eighteen million dollars¹ and developmental costs were re-assigned to the communications department (details in Chapter 8), either a fundamental change in plans occurred and/or something is amiss.²

(b) Stock subscription formula

The formula for share allotments was not officially approved until late in 1970. Why did it take so long? One source of difficulties may have been Section 28 in the enabling act which specifies that:³

The proportion in which the company allots any of its common shares among approved telecommunications common carriers shall be such as are approved by the Minister after consultation with the approved telecommunications common carriers.

The keynote word here is *consultation* which the senior advisory counsel assured the Commons standing committee meant *effective* consultation.⁴ Given that the standard industry practice is to rely upon traffic figures as the basis for equity investment in joint ventures,⁵ there were two problems.

¹ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 34, p. 1676.

² Idem, Department of National Defence, Directorate of Communications Engineering and Maintenance, "A Brief Guide to Satellite Systems: I Military Communications, II Commercial Communications and III Application Satellites, Ottawa, Ontario, 1 May 1976, (Mimeographed,) pp. 2, 11. One unknown is the military usage of these circuits.

³ Idem, Laws, Statutes, etc., Telesat Canada Act of 1968-69, p. 17.

⁴ Idem, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 40, p. 41-5.

⁵ Op. cit. See page 107.

Into which category - federal government or common carrier - should the railway company(s) be placed under these circumstances? Should they be granted the same size of allotment (see Supplementary Exhibit M1)?

The first communications minister referred to another possible cause of the delay when he testified that:¹

Work is going ahead with a view to signing contracts. After that, and not before, it would be normal to expect that there would be financial arrangements, namely, financing through the issuing of shares or debentures to the public.

Agreements-in-principle on the leasing of six channels had been reached before March of 1969 but all of these service agreements were not signed until almost two years after the official allotment formula had been specified. Why was the proper sequence reversed?

Exhibit 11 documents a trilogy of share subscription proposals. The first one may have been submitted to a central agency(s). The second one was forwarded to the Cabinet. The third one was uttered in the House of Commons. The main under-current to the statements by the first communications minister about equal allotments and the proposed amendment to Section 5 was a quest by the common carriers for a veto² over the Telesat board. Superficially, the second proposal seems to accommodate both the legal requirement for tripartite ownership and the suggestion by a

¹Canada, Parliament, Debates (Commons), 2nd session, 28th parliament (1969-70): 399.

²Idem, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 34, pp. 1731-2.

EXHIBIT 11

PROPOSED AND ACTUAL DISTRIBUTION OF TELESAT COMMON SHARES

Party	10/69 Telesat By-Law 13	12/71 Outstanding Shares	03/71 Minister's Statement
General Public	3,750,000	1	3,333,333
Government of Canada	3,125,000	3,000,000	3,333,333
Common Carriers	3,125,000	3,000,000	3,333,333

SOURCES: Canada, Telesat Canada, "By-Laws of the Corporation," Ottawa, Ontario, (Typewritten); Idem, Annual Reports (Ottawa: Telesat, 1969-72) and Idem, Parliament, Parliamentary Debates (Commons), 3rd session, 28th parliament (1970-72): 3820.

provincial official that:¹

Rather than having a 49-51 per cent ratio which by its very connotation spells a direction of control, it would be better to have a sharing of 50-50. I did say the amount of public participation for investors should be held in reserve.

About a month after the enabling act was proclaimed, By-Law 13 was passed pursuant to Section 12(1) and (2) which had been separated in order:²

To place the responsibility for the change not in the hands of the Governor in Council but in the hands of the directors of the corporation themselves both at the time that the size of the Board is originally increased and at any time when the directors see fit to vary from whatever figure they decide on at that time.

This corporate regulation unofficially approved the enlargement of the board to sixteen members with six directors elected by eligible persons, five directors elected by the common carriers and five more appointed by the Governor in Council. Its passage³ implied that an agreement had been reached amongst the provisional directors on a share subscription formula.

About a month after the Anik I procurement contracts had been executed, two by-laws were passed by the provisional directors at a special

¹ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 38, p. 1994.

² Idem, Proceeding No. 40, p. 2121.

³ Idem, Telesat Canada, "By-Laws of the Corporation," Ottawa, Ontario, August 1978, (Typewritten.) Apparently, the telephone common carrier nominees to the interim board were in attendance but did not participate actively in the meetings.

NOTE: The desk book copy did not include the details on By-Law 13 but merely referred the reader to By-Laws 17 and 18.

general meeting.¹ These corporate regulations were then submitted to the Cabinet and quickly received its approval. By-Laws 17 and 18 officially authorized an expansion of the board to eleven members with one director elected by a special eligible person (details in the next segment), five directors elected by the common carriers and five more appointed by the Governor in Council. The timing of these changes raises two related questions. What was the degree of *arms-length* in the preparatory discussions since every director held office *during pleasure*? Was this distance a proper one since the Cabinet does not have the power: "... to originate any change or any original formulation ..."²?

The stock subscription scheme involved the issuance of six million and one out of the ten million authorized common shares. Why did the proportions match the *confidential* PCO formula listed in Exhibit 7? Was the one-third split formula merely a *rue de la politique* to expedite the passage of Bill C-184? In addition, the above formula seems contrary to the *spirit* of an explicit ministerial rejection of this option in the House of Commons. Unofficially, ten dollars was specified as the correct cash consideration for each common share in order to enhance their dispersability.⁴ Why, then,

¹Canada, Telesat Canada, "Desk Book: By-Laws of the Company," Ottawa, Ontario, March 1978, (Mimeographed.)

²Idem, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 39, p. 2074.

³Op. cit. See pages 109-10.

⁴Fetherstonbaugh, Sise, p. 92. When Western Union and Bell Canada were organized, the original price was set at \$100 in order to deter the *widow and orphan* type of investor.

were Section 6(h) which allows for the exchange of shares for earth station sites and Section 35 which provides an expropriation mechanism included in the enabling act but apparently not utilized? The first installment of common shares was one-third and should have been subscribed for by the end of December. The other two-thirds were taken up: "... in four equal consecutive quarterly installments commencing April 1, 1971."¹

Subscription Schedule

December	1970	1,903,001
January	1971	97,000
April	1971	1,000,000
July	1971	1,000,000
November	1971	1,000,000
March	1972	1,000,000

Two changes were an integral part of the initial subscription. The option of a mixed enterprise mode was nullified and a permanent board of directors (see Supplementary Exhibits N1 and N2) was set up with: "... a distinct change in character."²

Is the existing distribution of common shares and votes the permanent one for the foreseeable future? A few months before the Board officially approved the TCTS/T Agreement, the president reportedly: "... described the Telesat set-up as unique and said there was no room at present for other participants."³ During the regulatory hearings on the membership agreement, a provincial attorney-general wrote that the financial opinions garnered by

¹ Canada, Telesat Canada, Annual Report 1971 (Ottawa: Telesat, 1972), p. 7.

² Idem, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 40, p. 2095.

³ M. Lavoie, "Telesat needs money, won't sell public shares," Citizen, Ottawa, 28 February 1976, sec. 1, p. 15.

the Telesat management had indicated that: "... it would impossible to raise risk capital in the market."¹ Why was the boardroom disposition varied and the issue to the general public delayed - perhaps even abandoned?

(c) Issue to the general public

Four months after the authorization of By-Law 18 and one month before the official announcement of his resignation, the first communications minister stated in the House of Commons that:²

The president of Telesat informs me that the board of directors intends to recommend issuing shares representing approximately one-third equity in the corporation. These are to be offered to the public.

Using hindsight, the testimony below of a provincial official was yet another succinct prediction. On this occasion, it was about:³

The public sharing directly in the ownership of Telesat Canada ... Perhaps this highly desirable situation could be delayed until the system is fully operational and a number of obstacles overcome.

As mentioned in the previous chapter, an issue to the general public might entail two things. It could have shifted the balance of voting power

¹Letter of Intervention from the Attorney-General of British Columbia to the Canadian Radio-television and Telecommunications Commission, Victoria, B.C., 14 March 1977, (Mimeographed.)

²Canada, Parliament, Debates (Commons), 3rd session, 28th parliament (1970-72): 3820.

³Idem, House of Commons, Standing Committee on Broadcasting, Films

in favour of the underwriters and the common carriers. Given that it was unfeasible to arrange for widely-dispersed shareholders to nominate and elect directors, provision could have been made to ensure that the Telesat management received these proxies. The subscription of a solitary share by the Telesat president represented an ingenious compromise between these options. In this way, the federal Cabinet fulfilled the letter of its legal obligations but denied the spirit of the ministerial commitments.

Inherently, there are two drawbacks. One involves a commitment to a Commons standing committee member given somewhat reluctantly by the first communications minister. The dialogue was as follows:¹

Mr. Osler: I wonder if I could ask Mr. Kierans if it will be accepted as a matter of policy and he will see to it that there is no conflict of interest in the case of the mandarin members of the Board of Directors and they will not, in fact, be permitted to hold shares.

Mr. Kierans: ... but I will see to it.

A narrow interpretation of this promise is that it covers only the directors appointed by order-in-council. A wider one is that it covers the deputy minister from the industry department who was appointed to the Telesat presidency and still retains that position (further details in the next section).

The other drawback is much more serious. In effect, Canadian residents were denied the privilege to acquire common shares and thereby

and Assistance to the Arts, Proceeding No. 38, pp. 1967, 1968.

¹ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 41, p. 2168.

the right to sue the enterprise concerning questionable capital expenditures.¹

On at least one occasion, the general public and parliamentarians may have been misled about the proportion and imminence of an issue. This obtuse - perhaps devious - bargain was reached *in camera* and undertaken in spite of or on account of the following warning:²

Because of the special nature of this corporation,
 .. There is a real need to assure that the public
 interest is protected and that complete scrutiny
 of the operation of this corporation is maintained.

Did the general public need to be protected against themselves or certain investors?

(d) Summary

Based upon the material presented in the first section, the organization of Telesat Canada has so far occurred in four phases. Three demarkation points are the statutory one specified in Section 12 of the enabling act and two contractual ones denoted by the pooling arrangements and the TCTS/T Agreement. The keynote presumption which can be made at this time is that each change involved a significant re-distribution of power amongst the coalition members, i.e. the federal government, common carriers and Telesat management.

The evidence logged in this section also confirms the presence of all

¹B.C. Strayer, "The Elements of a Constitutional Case," in Judicial Review of Legislation in Canada, ed. B.C. Strayer (Toronto: University of Toronto Press, 1968), pp. 120-5.

²Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 41, pp. 2142-3.

three roles. Telesat Canada acts as a common carrier with the CBC but reportedly the enterprise can veto certain expansion plans of the federal broadcasting company. Was this peculiar constraint only one item (see Supplementary Exhibit N1) in a series of *quid pro quo* exchanges between the Cabinet or central agencies and the CBC? Was the price tag its acquiescence in the abandonment of plans for a domestic satellite communications system where the first generation of key facilities specialized in radio and television signal distribution? The service agreements with the COTC and RCA Corp. not only pushed the revenues just beyond the break-even point but also sustained the illusion that the enterprise was willing to act as a carrier's carrier for anyone other than the common carrier(s) which represented¹ a given territory. The pooling arrangement with the TCTS and CN/CP Telecommunications meant that Telesat Canada acted as a carriers' carrier with them.

The complexity of the special charter and the enterprise itself was commented upon by one of the Commons standing committee members, as follows:²

It is not a Crown corporation....
It is something absolutely new in the eyes of the law of Canada, it cannot be compared with CBC or CNR or any other Crown corporation it cannot be compared with Bell telephone, or any telephone carrier.

Exactly what kind of classification or designation is appropriate?

¹Op. cit. See page 57.

²Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 41, p. 2139.

2. Central Hypothesis

Given the ambivalent findings on role specification and the spectre of federal abrogation of policy-making responsibilities through concessions in *confidential* contracts, Section Two seeks to accomplish several things. Whether or not the laws connected with majority ownership can be invoked after a vote during a board or general meeting will be determined. The specific circumstances under which a particular party can claim majority ownership rights will be presented. The validity of the central hypothesis will be tested by the examination of this nexus factor. The role specification and policy-making ones will be re-assessed in the next part.

A label will be attached to Telesat Canada and a presumption offered about whether or not this enterprise was supposed to function as a competitive forum for system planning and revenue sharing such that it threatened traditional prerogatives and existing arrangements. The section is divided into three segments: majority ownership rights, other mechanisms and summary.

(a) Majority ownership rights

For the first eighteen months, every provisional director was appointed by order-in-council, held office *during pleasure* and voted a single share. As highlighted in Supplementary Exhibit IV, the federal Cabinet was assured of a majority on this interim board by virtue of the following distribution of votes. The careers of four directors were closely connected with the federal public service and with departments that have a special or vested interest in the adoption of satellite communications. One

director could be designated as an *outsider* except that his firm has a special interest¹ in and knowledge² of the construction of buildings in remote regions. Therefore, it would seem reasonable to draw one conclusion. Telesat Canada functioned as an agency crown corporation³ (see Exhibit 2) rather than a mixed enterprise while the Anik Is were being procured and until the permanent board was appointed or elected.

Exhibits 12 and 13 present the existing distribution of outstanding common shares⁴ from two different perspectives. Section 23(1) of the enabling act specifies that each share shall have one vote. Sections 10(5) and 23(2) specify that preferred shares shall have neither voting nor convertability rights. Based upon the figures in these exhibits and pursuant to the above provisions, two more conclusions can be drawn. There are layers of influence and direct control over certain selected directors can vary within a given year, from year-to-year (see Supplementary Exhibit N1) and under different conditions.

Cabinet Influence

Source	Votes	%
Through the Minister of Finance,	3,000,000	49.99
Including the special eligible person,	3,000,001	50 plus

¹ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceedings Nos. 40 and 41, p. 2105 and p. 2144. The directors were suppose to argue for a given policy position rather than try to act in a judicial or neutral manner.

² Idem, Proceeding No. 38, p. 2021.

³ Op. cit. See page 12.

⁴ Canada, Telesat Canada, "Statement of Equity Interest in Telesat Canada," Submitted at the Canadian Radio-television and Telecommunications

EXHIBIT 12

PUBLIC VERSUS PRIVATE SECTOR OWNERSHIP
(6,000,001 shares)

	Outstanding Common Shares	Percentage
PUBLIC SECTOR		
Federal Government	3,225,000	53.75000
Provincial Governments	494,700	8.24999
PRIVATE SECTOR		
Domestic Organizations	1,890,300	31.50500
Foreign-Controlled Organizations	390,000	6.49999
General Public	1	0.00002

SOURCE: Canada, Telesat Canada, "Statement of Equity Interest in Telesat Canada," Submitted at the Canadian Radio-television and Telecommunications Commission hearing on 22 February 1977, Ottawa, Ontario, (Mimeographed.)

EXHIBIT 13

TELEPHONE VERSUS TELEGRAPH CONSORTIUM OWNERSHIP
(3,000,000 shares)

	Outstanding Common Shares	%	Percentage %
CONTINENTAL TELEPHONE CONSORTIUM*			84.50
Bell Canada*	1,475,700	49.19	
New Brunswick Telephone Co., Ltd.*	79,800	2.66	
Newfoundland Telephone Co., Ltd.*	30,000	1.00	
Maritime Telegraph & Telephone Co., Ltd.*	73,800	2.46	
Island Telephone Co., Ltd.*	6,000	0.20	
			55.51
Alberta Government Telephones*	279,900	9.33	
Saskatchewan Telecommunications*	99,900	3.33	
Manitoba Telephone System*	99,900	3.33	
Ontario Northland Transport Commission	15,000	0.50	
			16.49
General Telephone & Electronics Corp.			
Anglo-Canadian Telephone Co., Ltd.			
British Columbia Telephone Company*	330,000	11.00	
Québec-Téléphone	60,000	2.00	
			13.00
DOMESTIC TELEGRAPH CONSORTIUM			15.0
Canadian National Railway Company	225,000	7.50	
Canadian Pacific Railway Company	225,000	7.50	

SOURCE: Op. cit.

Including the federal crown railway, and	3,255,001	53.75
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Including common carriers with Dominion charters	5,255,701	87.09
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There are two directorships which can either complement or off-set each other. One pivotal position is connected with the solitary share of the general public held by the Telesat president.¹ Not too surprisingly, this special eligible person has elected the chief executive officer - himself - to the Telesat board every year. Pursuant to Section 14 of the enabling act, this particular annual election is subject to cabinet approval.² The complexity of the above electoral process cannot completely mask the doubts about its propriety raised by the testimony that:³

It would be inappropriate where the Governor in Council has the power to appoint also to give him a right to vote on election of directors.

The other pivotal position is connected with the railway companies. A brief review of Supplementary Exhibit N1 reveals several curious items. The CNR and CPR have shared a directorship in the past yet did not elect an executive on an alternate basis. By design or coincidence, a CPR representative was absent two or more years preceeding the preparation of both sets of service agreements with the telephone common carriers. When the subject

Commission hearing on 22 February 1977, Ottawa, Ontario, (Mimeographed.)

¹ Canada, Parliament, Debates (Commons), 2nd session, 28th parliament (1969-70): 1253. David Golden was deputy minister of the Defence Production Department until 1962, the president of the Northern Ontario Pipeline Corp. until 1964, then deputy minister of the Department of Industry until 1969.

² Op. cit. See page 27.

³ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 40, p. 2099.

of federal control over the CNR vote was considered during a Commons standing committee hearing, some of the members expressed opinions which were the opposite of the ones offered by the TCTS executives.¹ Ever since the application for interconnection² in 1976, Canadian Pacific Ltd. has been unusually vulnerable to pressure from the federal government on Telesat voting matters (further details in Chapter 9).

Between three and four directorships are subject to the election of nominees selected - directly or indirectly - by the boards of two holding companies (see Exhibits 5 and 13). Federal influence over these common carriers is through their Dominion charters and is greatest on the rare occasions when these companies seek to have them amended and/or their authorized capital increased.³ Yet, the PCO scheduled the amendment of the Bell Canada charter (C-104)⁴ ahead of Bills C-173 and C-184.

It would seem reasonable to conclude that the federal government is the only party which can muster more than three million votes on a repetitive basis and thereby legitimately claim majority ownership. Consequently, the federal Cabinet has a *de jure* authority over Telesat Canada by virtue of its appointment of the directors who hold office *during pleasure* plus its direct or indirect approval of at least one other director who holds office for a

¹ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 34, p. 1727.

² CP Telecommunications, "Application - Re: Access to Bell Canada system for telecommunication traffic," Montreal, Québec, 14 June 1976, (Mimeographed.)

³ "Bell to split," Globe and Mail, 23 November 1978, sec. 2, p. B6. Shareholders will be asked to approve an increase from \$1.75 to \$5 billion.

⁴ Canada, Parliament, Debates (Commons), 1st session, 28th parliament

one-year-term. The majority is not so clear, however, that the outcome of any given vote can be predicted with absolute certainty.

(b) Other mechanisms

The four mechanisms which should indicate whether one individual, group or party can exercise policy-making control are: personnel, reorganization, regulation and budgets.

(i) personnel

The Telesat president is a federal mandarin. A retired CBC president and pioneer broadcaster was appointed to the chairmanship of Telesat Canada and to the same position on the special advisory board which identifies research priorities for the communications department.¹ The corporate officers are almost exclusively from the ranks of the federal public service.² The annual reports contain circumstantial evidence which supports the contention that there were *two solitudes* rather than the oneness and openness of equality amongst the coalition members. While the appointees and officers transferred between Telesat Canada and other areas of the federal public service, elected directors for the most part transferred between the consortia and their respective common carriers. Consequently, it would seem

(1968-69): 7571-5.

¹Op. cit. See page 80.

²Canada, Telesat Canada, Annual Reports 1969-77 (Ottawa: Telesat, 1970-78.) The position and previous affiliation of the first appointees were: president (Department of Industry), vice-president finance (Industrial Development Bank), vice-president engineering and operations (Defence Research Board),

reasonable to assume that the Telesat president¹ neither moved nor approved any resolution or by-law which seriously contravened cabinet policy or priorities since 1970.

(ii) reorganization

As outlined in the previous two chapters, there have been three adjustments to the Telesat niche. The first one involved a revision of the corporate objects by letters patent application in 1972. The second and third ones occurred about four years later. They involved the declaration by the Treasury Board that Telesat Canada was an associate company of the Canadian National Railway Company and the approval by the Cabinet of the TCTS/T Agreement.¹

In each instance, co-operation and discretion by the Telesat president and/or CNR executive,² central agencies and the Cabinet was essential. The possibility that the CN Telecommunications or Telesat Canada could be reorganized as a fully-integrated common carrier constituted a source of leverage against Bell Canada and General Telephone & Electronics Corp. but remained a remote one.

vice-president administration (Expo '67) and vice-president planning and marketing (Department of Supply and Services).

¹ Hutchison, "CRTC hearing's evidence: Telesat's decision to join phone system a Golden one?" p. 10.

² Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 40, pp. 2106-7.

(iii) regulation

As documented in the third chapter, there were two different kinds of federal regulatory bodies and both processes have relevance to satellite communications. Telesat Canada has acted like a common carrier concerning this matter in that it claims to have voluntarily submitted its single application for approval by the CRTC and its tariffs¹ for perusal by the public. Given that rate regulation would be viewed as an encroachment upon the constitutional duties of the provincial governments,² it would seem reasonable to presume that the federal Cabinet sought to avoid any explicit or *res judicata*³ clarification of this matter.

(iv) budgets

As outlined in the previous section, the dependence of the annual Telesat budgets upon government advances, loans, line of credit and leases has progressively been shifted towards a dependence upon telephone common carrier service agreements⁴ and the banking community. In spite of a statement by a Telesat counsel that direct subsidies were not received from the Government of Canada,⁵ it would seem reasonable to presume that collectively these techniques did represent a form of indirect subsidization

¹Canada, Telesat Canada, Finance Department, Rates, Tariffs and Revenue Requirements Branch, "Special Assembly Tariffs," Ottawa, Ontario, 5 May 1976, (Mimeographed.)

²Op. cit. See page 71.

³Osborn, Concise Law Dictionary, p. 278. A judicial decision is conclusive until reversed by Parliament and/or Legislatures.

⁴Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 39, p. 2049.

⁵A. J. Hewitt, "Rebuttal Argument," Ottawa, Ontario, 29 June 1977,

(details in Chapter 7).

The balance of probabilities based upon all four mechanisms favours two conclusions. The federal Cabinet retained the burden of majority ownership rights after the subscription of common shares and can function as a *court-of-last-resort* in the event that a directoral deadlock occurs. A preliminary assessment of the central hypothesis indicates that it is valid since the existence of the above rights precludes an equal sharing of direct control.

(c) Summary

Two labels are possible. Telesat Canada can be categorized as a composite enterprise on account of one primary and one secondary source of foreign ownership. The British Columbia Telephone Company is controlled by a Montreal-based holding company¹ which is, in turn, controlled by the second largest telephone company in the USA.² Even though an American corporate officer no longer sits on the Canadian board, linkages between Bell Canada and AT&T in the form of minority stock ownership;³ nomination

(Mimeographed.)

¹Canada, Parliament, Parliamentary Debates (Commons), 4th session, 21st parliament (1951): 1340.

²"Law: GTE feels the sting of an antitrust ruling," Business Week, 20 March 1978, pp. 37-8. GTE operates about 37 per cent of the independent telephone system in the USA but only 7.4 per cent of the national one when adjusted for Bell System purchases of telephone equipment.

³Canada, Parliament, Parliamentary Debates (Commons), 2nd session, 26th parliament (1964-65): 4719, 7847-8, 10813. Apparently, AT&T held 2.8

of a director; 1923 Service Agreement; institutional philosophy, policies, practices and procedures; and connections through the financial community probably still justify its classification as a quasi-associate company of the Bell System (see Supplementary Exhibit E2).

Telesat Canada can also be categorized as a new kind of federal agency. This *crown enterprise* could pose as an independent corporation and could utilize retained earnings and private sector financial sources rather than taxes. It could operate beyond the standard statutory and most regulative restrictions related to federal crown companies as well as outside the ones related to provincial securities and exchange commissions.¹ A decade after the incorporation, the Telesat president used the analogy below to describe a similar situation involving two aircraft manufacturers owned by the federal government:²

It is clear that the rights of ownership in any tangible object are usually regarded as all embracing and not subject to any restriction or inhibition....

Presumably, no one will question his right to destroy, use it, give it away, or whatever.

A number of serious questions have been raised by the findings in this chapter. How independent are the Telesat directors and management? Doubts were expressed on several occasions during the Commons standing committee

per cent of the Bell Canada stock at this time and four large financial institutions held 34.6 per cent. Bell Canada paid 1 per cent of its gross income to AT&T from the 1930s to the 1970s.

¹Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 38, p. 1971.

²D.A. Golden, "Memorandum Concerning Canadair Limited and The deHavilland Aircraft of Canada Limited," Prepared for the Minister of Industry, Trade and Commerce, Ottawa, Ontario, 10 July 1978, (Mimeographed,) p. 4.

hearings. One member suggested that:¹

There are quite a number of instances in the Bill where the powers of the Board are subject to approval by Governor in Council. I would hope that such instances could be minimized; because a board of directors which has any sense of responsibility would want its authority coterminus therewith.

Another member related an incident where he overheard:²

A lawyer say the other day after studying it that about all they have left is the authority to set the agenda for meetings.

Did the federal Cabinet ever specify a proper role and actually exercise policy-making control over its crown enterprise?

¹ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 38, p. 1950.

² Ibid, p. 1957.

PART III

TELESAT CANADA AS A CROWN ENTERPRISE:
A FURTHER ASSESSMENT

CHAPTER 6: TELESAT CANADA - GOAL DEVELOPMENT

Chapter Six sets out to do two things. The potential for federal intervention in the Telesat decision-making process will be more fully examined. The facets of a communications policy which various stakeholders sought to have instituted as the goal(s) for capital expenditures on key facilities will be delineated.

The chapter is divided into three sections: specific interventions, sectoral and organizational goals, then summary.

1. Specific Interventions

Section One seeks to answer one question. Exactly what is the full extent of the cabinet, ministerial and central agency powers to vet, delay, vary or nullify certain resolutions, motions or capital expenditures after their approval by the Telesat board? There are two possible sources of authorization. One is various sections in existing *stop-gap*¹ regulatory legislation. The other is special sections in the enabling act whereby government involvement is assured in: "... such matters as Canadian content of hardware."² It was these fragile³ *fail-safe* provisions that were being

¹Op. cit. See page 89.

²Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 29, p. 1476.

³Idem, Proceeding No. 41, p. 2154.

referred to in the quotations at the end of the previous chapter.

Presumably, they were included in case a party other than the federal government secured a majority interest or sought to implant an onerous set of: "... conditions or assumptions on which they are willing to use the system."¹

(a) Regulatory provisions

The fifth section in the Department of Communications Act of 1968-69 specifies that the communications minister shall:²

- (a) coordinate, promote and recommend national policies and programs with respect to communication services for Canada, including the Canada Post Office;...
- (d) plan and coordinate telecommunication services for departments, branches and agencies of the Government of Canada.

Under Sections 3(1)(a) and (e) of the Radio Act of 1952, the designated minister must approve any licence for the construction, installation or operation of two-way communications facilities such as wireless stations and radio relay by towers and/or spacecraft.³ One-way communications facilities such as broadcasting stations, community antenna

¹Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 38, p. 2005.

²Idem, Laws, Statutes, etc., Department of Communications Act, R.S.C. 1968-69, c. 28, s. 7 (Ottawa: Queen's Printer, 1970), p. 1178.

³Idem, Railway Act, R.S.C. 1952, c. 233, s. 1 (Ottawa: Queen's Printer, 1970), pp. 6289-90.

television systems¹ or satcasting network(s) are covered by the Broadcasting Act of 1968. This statute allocates the licensing responsibility to a theoretically-independent and quasi-judicial regulatory commission. One exception to both laws is: "... any radio stations or radio apparatus that is capable of receiving radiocommunications and that is not a broadcasting undertaking."²

On a couple of occasions in previous chapters, it was argued that the exact status and role of Telesat Canada had been deliberately left unclear. The provisions just introduced point out yet another aspect of this contention. Given that the enabling act does not confine the domestic satellite communication system to *point- or multipoint-to-point* facilities and services, this crown enterprise could be classified as either telephone/telegraph company,³ broadcasting undertaking or something else.⁴

(b) Special provisions

Four sections in the Telesat Canada Act of 1968-69 specify the

¹M. Lavoie, "Legal or not this tiny Yukon town gets TV," *Citizen*, Ottawa, 7 January 1976, sec. 3, p. 37. Either the Teslin Communications Club could not be classified as a *broadcasting receiving undertaking* or the federal Cabinet wanted to avoid the publicity and investigations connected with a trial.

²Canada, Laws, Statutes, etc., Radio Act of 1952, sec. 3(3), p. 6291.

³Op. cit. See page 67.

NOTE: Depending upon the circumstances, certain common carriers have found it expedient to claim that they are telephone or telecommunications companies and that their signals are Hertzian waves or something else.

⁴M. Davis, "Bell out to block cablevision fire, burglar alarm systems,"

particular circumstances under which the federal Cabinet, a minister or a central agency may intervene in the Telesat decision-making process.

Section 42 authorizes a *downstream* r&d relationship between the crown enterprise, communications department and its space laboratory.¹ It also provides for the approval of this kind of agreement(s) by a central agency in that:²

Any department or agency of the Government of Canada that is engaged in research or development work that is in any way related to the objects and responsibilities of the company may enter into contracts with the company, on terms and conditions approved by the Treasury Board.

Section 8 on *Duties* delineates two entry points in that:³

(1) Each request by the company for a proposal for the construction of a satellite or earth station shall be submitted to the Minister, and no such request shall be issued, within thirty days of the submission thereof to the Minister to a person qualified to submit a proposal in response thereto unless, within that time, the Minister indicates in writing to the company that he is satisfied that the request, by its terms, will result in proposals that specify a reasonable utilization of Canadian design and engineering skills and the incorporation of an appropriate proportion of Canadian components

Citizen, Ottawa, 22 November 1978, sec. 1, p. 5.

¹Op. cit. See page 80. Budgetary domination by satellite communications projects probably ended with the CTS one.

²Canada, Laws, Statutes, etc., Telesat Canada Act of 1968-69, p. 23.

³Ibid, sec. 8, pp. 5-6.

and materials.

(2) No proposal submitted to the company in response to a request for a proposal for the construction of a satellite or earth station shall be accepted by the company within thirty days after the proposal is submitted to it unless (a) the proposal is submitted in response to a request for a proposal that was approved by the Minister under subsection (1) conforms with the terms of the request, or (b) the Minister, within the thirty-day period, indicates in writing that he is satisfied that the proposal specifies a reasonable utilization of Canadian design and engineering skills and the incorporation of an appropriate proportion of Canadian components and materials.

A number of auxiliary but pertinent factors should be highlighted.

There is no appeal mechanism authorized in the enabling act. A traditional ministerial prerogative is that any member of the Cabinet has the right to schedule any issue for discussion by this managerial body. Only shareholders have *locus standi*¹ which permits recourse to the courts² on a variety of grounds.

Closer political scrutiny³ since the end of the Second World War has increased the importance of solidarity within the science community. For better or worse, the bulk of its members who were actively interested in satellite communications research and development became involved in one project (details in Chapter 8). The general public were both naive and apathetic about the token issue of a single share to a

¹Osborn, Concise Law Dictionary, p. 197. This legal principle is defined here as: *the right to be heard in court or other proceeding.*

²"Satellite battle grows with CP serving writ," Globe and Mail, 11 November 1977, sec. 1, p. 4.

³G.B. Doern, Science and Politics in Canada (Montreal and London:

trusted mandarin. Without an issue to the general public, two things happened. Accountability to the public at large took a nose-dive. The federal Cabinet became the vital arbitrator of what constitutes *reasonable* and *appropriate* in matters such as Canadian content¹ or interconnection² (details in Chapter 8).

A Canadian banking executive commented on Section 8 as follows: "... it seems to me that, in a fundamental way, the powers of the Board would be removed."³ Yet, the senior advisory counsel testified that:⁴

It does not provide a veto power to the Minister. It is simply a delay clause, or procedure ... If, after 30 days, the Minister is either satisfied or has failed to convince Telesat ... it is free to go ahead with whatever proposal it originally presented, or a proposal modified as agreed with the Minister.

Majority ownership would be vital for any exercise of policy-making and administrative control over capital expenditures unless there are auxiliary sources of leverage.

McGill-Queen's University Press, 1972), pp. 119, 122.

¹Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 38, p. 1956. The Canadian banking executive and author of a *secret* PCO study indicated that the figure might be 50 per cent, including satellite and earth station segments.

²Idem, Privy Council Office, "Order-in-Council P.C. 1977-3152," Ottawa, Ontario, 3 November 1977, (Mimeographed.)
NOTE: The exact reasons for this order which, *in effect*, set aside but legally only *varied* CRTC 77-10 were left unspecified except perhaps in *confidential* Memorandum(s) to Cabinet.

³Idem, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 38, p. 1953.

⁴Ibid, p. 2013.

Section 6(1)(b) on the *Powers of the Company* specifies that:¹

The power, subject to section 9, to negotiate and to enter into, under the direction of the Minister, suitable arrangements for the launching of satellites.

As mentioned in the previous chapter, Section 14(1) on the *President* specifies that:²

The Governor in Council shall designate one of the provisional directors of the company to be the first president of the company to hold office until the Board of Directors takes office and thereafter the Board shall, with the approval of the Governor in Council, annually elect a president from among its members.

Any managerial proposals to the Board must be forwarded by this chief executive officer and federal mandarin.³ Consequently, it would seem reasonable to assume that he would exercise considerable discretion in matters with public policy implications.

Given that the financial figures in the annual reports were manipulated to show a modest profit (further details in the next two chapters), a number of presumptions can be made. Public demands for an issue of common shares would remain sporadic. Parliamentary intervention⁴

¹ Canada, Laws, Statutes, etc., Telesat Canada Act of 1968-69, p. 4.

² Ibid, p. 10.

³ Canadian Press, "Telesat urges caution on aircraft firm sales," Globe and Mail, 29 August 1978, sec. 2, p. B2. As mentioned in the previous chapter, the Telesat president and former deputy minister of defence production and industry departments conducted a one-year study.

⁴ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 29, p. 1519.

would be unlikely on account of the need for unanimous consent(s).¹

Conflict with the common carriers and provincial governments would be minimal under two further conditions. Existing sources of revenues and traditional prerogatives did not become subject to unilateral revision. Satellite circuits could generate a unique surplus for distribution amongst the coalition members. Within these boundaries, the federal Cabinet could exercise a different kind of *de jure* authority over its crown enterprise. As a prohibitive and periodic source of public policy leverage, these provisions could complement but not replace the powers proffered by majority ownership rights.

Such a variety of intervention techniques and control mechanisms would endow any foray(s) on behalf of the federal Cabinet² with considerable flexibility and subtleness. Consequently, the federal government seems to have had a substantial advantage at the outset of the tripartite bargaining sessions primarily involving the common carriers, communications department and Telesat management. The focal point of their meetings would be what policy(s) and premise(s) should be drafted into various contractual commitments and memorandum of understanding.

The comments on the next page suggest that the conflict would not be

¹Op. cit. See page 113. Unanimous consent would be required for the Public Accounts Steering Committee or House of Commons.

²Consumers' Association of Canada v. Attorney General of Canada, Federal Court (1978). This case confirmed a precedent in the CSP Foods Ltd. and Canbra Foods Ltd. v. Canadian Transport Commission et al and the Governments of the Provinces of Alberta, Manitoba et al.

NOTE: When varying a regulatory decision, the Governor in Council acts in a supervisory role and does so in order to preserve *political accountability*.

quite so one-sided. A deputy minister from the communications department testified that:¹

I do not believe you can require companies or private citizens to purchase from a corporation - even a corporation of this nature. In other words, you can regulate the rates, but you cannot create that kind of mutuality of obligation.

A provincial official cautioned that:²

A charter such as this is only as good as the participants will actually and enthusiastically dedicate themselves to making it work.

Was there a national communications policy which the federal government was seeking to implement? If not, was one developed³ during the past ten years?

2. Communications Policy

Section Two seeks to answer a couple of questions. Is the Canadian communications policy a series of *ad hoc* proclamations and understandings which have been recorded over the years and/or a formal declaration? What sectoral and organizational goal(s) were touted by which stakeholder(s) as pertinent to the domestic satellite communication system and as potential guidelines for Telesat Canada?

¹Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 38, p. 2004.

²Ibid, p. 1977.

³Op. cit. See page 60. It took a group of U.S. companies using

As mentioned at the beginning of the third chapter, the detailed examination of Telesat purpose(s) and processes would be left until this part of the thesis. The next two chapters will concentrate on the first of these two organizational principles. Supplementary Exhibit A1 describes the various goals in the Perrow typology which was introduced in the first chapter. These five categories - societal, output, system, product and derived - will now be used to present answers to the questions on the previous page.

(a) Societal goal(s)

The documentary research for the case study under review uncovered a number of references to this kind of a goal. In 1965, the statement below was made in the House of Commons.

There are four fields of communications, ... radio, television, newspapers and periodicals which have a bearing on the cultural future of Canada and perhaps of Canada as a nation.... If Canada in the next century is to emerge as a nation we must in many ways depend on the strengths of our communications in the mass media. ¹

A couple of sessions later, the following one was made: ²

The most important of the principles is surely that which established that the airwaves, which

eminent political and legal advisers over a decade to work out the general agreements on wireless and broadcasting which - rightly or wrongly - provided a basis for the 1932 Consent Decree.

¹Canada, Parliament, Parliamentary Debates (Commons), 3rd session, 26th parliament (1965): 2460.

²Idem, 2nd session, 27th parliament (1967-68): 3714-5.

must be shared between public and private broadcasters, are public property and that they constitute a single broadcasting system.... Second, since the costs of operating both the public and private elements of the system are, in the end, borne by the public as a whole, it is quite clear that every Canadian is entitled to broadcasting service.... Indeed, communications is so important in our world today that one might almost equate it with survival.

That a change in federal perspectives was underway is implied by the statement in the House of Commons that:¹

Canada greatly needs a national policy taking in regional and national characteristics in the field of telecommunications. The importance of that field is undeniable.

In 1973, a green paper was released which compiled the broad societal goals that have been posited in one way or another ever since the 1932 Re Radio Reference case. The pertinent section reads as follows:²

The objectives of Canadian communications policy, in which broadcasting policy plays a significant part, should be to:

- safeguard, enrich, and strengthen the cultural, political, social and economic fabric of Canada;
- contribute to the flow and exchange of regional cultural information;
- reflect Canadian identity and the diversity of Canadian cultural and social values;
- contribute to the development of national unity;
- facilitate the orderly development of telecommunications in Canada and the provision of efficient and economic systems and services at just and reasonable rates.

¹ Canada, Parliament, Debates (Commons), 3rd session, 28th parliament (1970-72): 4985.

² Idem, Department of Communications, Proposals for a Canadian Communications Policy, p. 3.

Two points should be highlighted. A comparison of the items about broadcasting or telecommunications indicates a heavy emphasis on - almost a pre-occupation with - the former segment. The federal government also seems to have accepted a basic tenet of the telephone common carriers that *efficiency*¹ rather than productivity should be the main performance criteria in spite of two inherent drawbacks.

A 1939 study of the Bell System warned that:²

Completely centralized control results in a high quality of service, but without proper regulation over the holding company, there is no assurance that mistakes in judgement might not have a serious effect on both the service and the telephone rates.

There are two governing bodies with a mandate to specify various aspects of communications policy and define the public interest. Consequently, there is a collateral source of danger. The committeeman who was later appointed as the second communications minister warned that: "... if the pressure for centralized power persists, it will shatter confederation and fragment its parts beyond reuniting."³

Supplementary Exhibit G2 illustrates the net result of a decade of federal-provincial confrontations, negotiations and adjudication. The keynote items are as follows. The telephone common carrier tenet has moved to the forefront - Section 3(a) - of these policy considerations.

¹Op. cit. See page 16.

²Coon, American Tel & Tel, p. 163.

³Canada, Parliament, Debates (Commons), 2nd session, 28th parliament (1969-70): 2847. W. Stanbury was the second communications minister.

Another one of their arguments quoted below was transcribed into Section 3(q). Specifically,¹

We believe that regulations work in two ways. It not only protects the subscribers against unnecessary rates from the telephone company, it also ensures that modernization is taking place, that the services are up-to-date and that the long-term good of the telecommunications system is not damaged.

The 1967-68 declaration that *every Canadian is entitled to broadcasting service* was enlarged to encompass both segments but qualified by two statements. Any telecommunications claims are: "... subject to technological and economic limitations ..." ² as recommended by the TCTS executive during a Commons standing committee hearing. ³ Any broadcasting claims await the availability of *public funds* as pointed out by the CBC executives during a later hearing ⁴ (further details in the next three chapters).

While the broadcasting segment has been repatriated since 1967, the CATV or pay television and telecommunications ones should merely be

¹ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 34, p. 1719.

² Idem, Department of Communications, Bill C-24: An Act respecting telecommunications in Canada (Ottawa: Queen's Printer, 1978), sec. 3, p. 5. The Bell Canada policy is that connection within one-tenth of a mile does not entail an *out-of-pocket* expense for the customer. Otherwise, the charges are 20 cents per foot if hydro poles are available or 35 cents if it is necessary to bury a cable or install poles.

³ Idem, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 34, pp. 1694-7.

⁴ Op. cit. See page 86.

3

effectively controlled through either ownership or regulation. On the one hand, broadcasting fees should be *equitable*. On the other hand, telecommunications rates should be *just and reasonable* except where regulation replaces¹ certain forms of competition. In these cases, a proper balance should be sought. Indigenous r&d activities should be promoted; however, the burden of responsibility has still² not been assigned to the private sector and the onus is not adequately placed on the fully-integrated common carrier(s).

Which parties probably contributed the most to the promulgation of these goals? The primary ones were the federal government and the common carriers. The secondary ones seem to have been the provincial governments. How was Telesat Canada suppose to fit into this scheme of things? Back in 1968, the white paper released by the industry department specified a societal goal. The domestic satellite communication system should:³

Solve economically the unique problems created by certain physical and social characteristics of the Canadian territory.... meet the special challenge which exists in Canada to improve TV programme distribution, throughout the nation, in our two founding languages.

The crown enterprise holds a strategic position at the vortex of

¹Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 37, p. 1853. Regulation tends to be used to prevent losses and competitive entry. Otherwise, the pricing policy tends to rely upon cross-subsidization to eliminate competition. The standard operating procedure is to charge what the market and/or customer will bear.

²Idem, Senate, Special Committee on Science Policy, A Science Policy for Canada, 3 vols. (Ottawa: Queen's Printer, 1970), Vol. 2: Targets and Strategies for the Seventies (Ottawa: Information Canada, 1973), p. 379.

³Idem, Department of Industry, Domestic Satellite Communication

constitutional conflict and commercial competition. It also has a tactical advantage in the form of a coalition membership whose policy outputs were legitimized not only by regional representation (see Supplementary Exhibit N1) but also by an enabling act. Consequently, it would seem reasonable to presume two things. Telesat Canada contributed heavily towards the achievement of the public policies which became enshrined in Bill C-24. The service agreements executed by the crown enterprise contain a compromise(s) which balanced national, regional and special aspects of the public interest (details in Chapter 9).

(b) Output goal(s)

The output goal was specified as: "... to establish satellite communication systems providing... services between locations in Canada."¹ This objective could not be achieved; however, without access to two kinds of scarce resources.

The Science Secretariat had advised in a 1967 PCO study that:²

Canadian rights to station satellites in synchronous orbit locations between 75°W and 115°W longitude be established by international agreement....
Consideration be given to reassignment by ITU

System, p. 32.

¹ Canada, Laws, Statutes, etc., Telesat Canada Act of 1968-69, sec. 5(1), p. 3.

² Idem, Privy Council Office, Science Secretariat, Upper Atmosphere, p. 112.

of frequencies for communications satellites to increase the bandwidth available, to remove the present limitations due to interference with radio-relay services in Canada, and to provide frequencies for direct TV broadcast from satellite.

There are two important points here. One is the preference for a wider bandwidth for the 6/4GHz facilities. The other and perhaps related one is the presumption that direct-to-home broadcasts from a domestic communications satellite(s) was a distinct possibility in the foreseeable future.¹

The common carriers cautioned in their first brief to the transport minister that:²

It is imperative that our national space rights not be lost through procrastination or neglect. In the public interest, Canada's claim must be established by international agreement and secured by physical occupancy as soon as possible.

In light of the Zenith incident³ in the 1930s and Canada's vacant frequency

¹Canada; House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 33, pp. 1661-2. RCA Victor Ltd. estimated in the original proposal to the Board of Broadcast Governors that it would be technically feasible in 10 years but not politically so for 15-20 years. The smallest impediments would be modifications to the television sets and antenna. A COTC executive estimated during the Commons standing committee hearings that satcasting would take 10 years to develop. The first communications minister implied that this kind of satellite would be the third generation of key facility.

²Trans-Canada Telephone System and CN/CP Telecommunications, "Canadian Communications Satellite System," p. 5.

³J.H. Pennybacker, "Background, History and Issues," in Broadcasting and the Public Interest, eds. J.H. Pennybacker and W.W. Braden (New York: Random House, 1969), pp. 6-9.

record in the late 1960s,¹ there is an important - perhaps crucial - omission. It is the lack of a third exhortation; namely, that these internationally scarce resources should be fully utilized.

The report commissioned by the transport department contains the estimate that there could be as many as thirty-one parking positions between 84° and 124° west longitude assuming: "... minimum 1.3 degrees of separation."² Shortly after the Northern Electric Company submitted the report, a regulation was issued on this matter. The International Telecommunications Union (ITU) specified that there must be at least five degrees between communications satellites with the same frequency but from different countries. When the reports commissioned by the industry department were submitted, the Northern Electric Company stressed that a spacing of three degrees was possible: "... by combining the frequency interleaving plan ... with the polarization discrimination plan."³

The transport department arranged for the occupation of two parking slots between 85° and 120° west longitude while Bill C-184 was being drafted.⁴ Then, the communications department reserved the optimum slot

¹Op. cit. See pages 104-5.

²Canada, Department of Transport, Satellite Communications in Canada, 5 vols. (Ottawa: Northern Electric Co. Ltd., Research and Development Laboratories, 1967), Vol. 1: Requirements, by Northern Electric, sec. 5, p. 7.

³Idem, Department of Industry, Canadian Domestic Satellite Study (Ottawa: Northern Electric Co. Ltd., Aerospace Communications Laboratory, 1968), sec. 3, p. 2.6-1.

⁴Idem, Parliament, Debates (Commons), 2nd session, 27th parliament (1967-68): 7573-4. This quest was discussed in the House of Commons on 8 February 1968. International Frequency Registration Board circulars on the Symphonie and Anik systems are dated 30 January 1968 and 6 August 1968.

from 104⁰ to 114⁰ west longitude (see Supplementary Exhibit L2) with the ITU¹ and various agencies in the U.S. government.² Although the concept of a Canadian *space window* has fallen into disfavour,³ the unofficial position of the communications department reportedly is that it: "... doesn't want the principle of *first come, first served* over-turned."⁴ By implication, it also doesn't want the *use it; or lose it* one stringently applied (further details in Chapter 8).

Supplementary Exhibits L1-4 outline the launch dates, present or future dispositions and frequency bands of various domestic and international communications satellites. The 14/12 GHz developmental spacecraft designed and launched by the communications department and the American space agency (further details in Chapter 8) is only two degrees away from a 6/4 GHz operational satellite owned by Telesat Canada and only three degrees from a similar one owned by the RCA Corporation. Three Anik Is were placed into orbit instead of only one - perhaps two - satellites⁵ (further details in

¹Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 41, p. 2150. The ITU had already allocated certain registrations by 27 May 1969.

²Idem, Parliament, Debates (Commons), 3rd session, 28th parliament (1970-72): 6857. The deputy minister of the communications department and the FCC chairman corresponded on this matter in May and June of 1971.

³United States, National Aeronautics and Space Administration, "Operational Geostationary Satellites," Washington, D.C., 21 March 1978, (Diagram.)

⁴M. Laws, "World is tuning up for satellite space scramble," Financial Post, 11 November 1978, sec. 1, p. 13.

⁵Canada, House of Commons, Standing Committee on Broadcasting, Films

the next chapter). There is a significant disparity between the number of Canadian and American units relative to the historical differences in the traffic volumes within each country. The Anik Is were launched after four generations of Intelsat satellites¹ had been designed but before the bulk of the domestic American spacecraft were placed into orbit.

Consequently, it would seem reasonable to draw a conclusion about the procurement of these scarce geostationary orbits and space frequencies. Even though the output goal was specified by Parliament, considerable weight seems to have been given - rightly or wrongly - to the common carrier plea for and the political expediency of *occupancy* (further details in Chapter 9).

(c) System goal(s)

The system goal described in the white paper is that Telesat Canada should:²

Sell its services efficiently to the common carriers and television systems; and ... compete efficiently in those areas where competition is appropriate.

This objective is closely related to the dilemma of a proper role. Any attempt to once again penetrate the government and corporate *veil of secrecy*

and Assistance to the Arts, Proceeding No. 29, p. 1480. An assistant deputy minister estimated the launch date of the second unit as 1975 or 1978.

¹Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 33, pp. 1664-5. Hughes Aircraft built the Intelsat I, II, IV, IVA series. TRW, Inc. built the Intelsat IIIs. The Ford Motor Company is building the Intelsat Vs.

²Idem, Department of Industry, Domestic Satellite Communication System, p. 46.

deployed around the Telesat service agreements and procurement contracts¹ must cope with two more sources of complexity.

A qualifying remark of a TCTS executive suggests the existence of conceptual problems since: "... a system is a very difficult thing to define."² A considerable amount of confusion was caused by the disparity amongst the bevy of satellite and earth station proposals. There are the differences between the ones presented in the first chapter (see Supplementary Exhibits L6 and L7). In addition, there are the variances between them and the domestic satellite communication system actually installed (see Supplementary Exhibits L7 and Q1-3).

In order to clarify the system goal(s) and role(s) of Telesat Canada, this segment will concentrate on two possible incentives for coalition membership and/or compulsory lease participation. These systemic sub-goals are: profitability and/or growth.

(i) profitability

Early references to the basic prerequisites for profitability are contained in the studies prepared by a Bell Canada subsidiary for the transport department in 1967 and the industry department in 1968. In general,³

¹Canada, Parliament, Debates (Commons), 2nd session, 28th parliament (1969-70): 994. On 19 November 1969, private members' motions for papers on correspondence and bids were submitted. A year later, a request was withdrawn for the industry department studies on the grounds that they were an internal study for departmental working purposes only.

²Idem, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 34, p. 1691.

³Idem, Department of Transport, Satellite Communications in Canada, 5 vols. (Ottawa: Northern Electric Co. Ltd., Research and Development Laboratories, 1967), Vol. 5: Requirements, by Northern Electric, p. 2.

Satellites can be used to advantage in systems carrying a large amount of communications traffic between a small number of access points separated by long distances.

The *long-lines* which could have met these requirements were a separate national television distribution system; east-west trunks interconnected with existing broadcasting networks, CATV systems and/or telecommunications exchanges; and north-south military circuits.¹ Within the limits imposed by the above general parameters,²

Maximization of the number of communications channels is a primary consideration since it is the communications channels that will produce the revenue for this system.

As mentioned previously, the enabling act states that Telesat Canada must operate on a commercial basis and the first communications minister preferred to interpret this phrase as earning a profit. When pressed for a specific figure, he sallied forth in the House of Commons with the estimate that: "... the corporation would achieve a profit between 8 and 12 per cent."³ The retreat began almost immediately. By the time he appeared before the Commons standing committee, it had reached the position that:⁴

¹Canada, Telesat Canada, Annual Report 1975 (Ottawa: Telesat, 1976), p. 4. The bulk of the RCA traffic was switched by FCC order from an Anik to a Westar satellite in 1975. One exception was the one full R.F. channel which carried military traffic from Thule, Greenland to the U.S. mainland.

²Idem, Department of Industry, Canadian Domestic Satellite Study, sec. 1, p. 4.1-1. The frequency and polarization plan in this study allowed for 12 R.F. channels in the allocated 500 MHz frequency spectrum.

³Idem, Parliament, Debates (Commons), 1st session, 28th parliament (1968-69): 7903. Bell Canada was earning about 7 per cent after taxes.

⁴Idem, House of Commons, Standing Committee on Broadcasting, Films

When I spoke about a hope for profit ratio on the investment, all that I was trying to say is that the Department as a whole and myself as Minister are going to be pushing that corporation in every way to be as efficient as possible.

The financial figures in Exhibit 9 are inconsistent with the ones in Supplementary Exhibit J4. Even if the guarantee provided by the TCTS/T Agreement is included, the return on investment claims are valid only on one condition. The prerequisite is that Telesat Canada must have functioned as an agency crown corporation (see Exhibit 1B) until 1973 in that the procurement and installation costs of the 6/4 GHz facilities were somehow covered by an obtuse appropriation mechanism(s). One of many problems with this supposition is that the accumulated losses are being used to defer federal tax payments. Was an adequate return improbable or merely undesirable until either the Telesat board was acknowledged as the dominant forum or the crown enterprise joined the TCTS?

In order to clarify this aspect of Telesat profitability, two areas will now be probed. The crucial revenue and cost variables will be presented. Any related but basic changes in the domestic satellite communication system will be highlighted. What were the planned inputs in the form of guaranteed revenue from captive leasee(s)? An assistant deputy minister from the communications department reassured the Senate standing committee which reviewed Bill C-184 that:¹

and Assistance to the Arts, Proceeding No. 31, p. 1603.

¹Canada, Senate, Standing Committee on Transport and Communications, Proceeding No. 10, p. 161.

There will be two main classes of customers. One class will be the telephone company and the second will be the broadcasting company.... The projection made by the department is ... a revenue of \$18 million a year.

The implicit assumption was that the tacit agreements-in-principle for the lease of all six R.F. channels could be converted into detailed service agreements and would actually be executed.

A number of reservations were expressed by the common carriers. The main criticisms of the entire project and the use of multiple-access circuits in the South were that:¹

- (1) The development cost of a satellite is substantial - more than \$20 million - and this cost has to be fully absorbed by the two initial satellites....
- (2) The life of the proposed satellite is estimated at five years, which is much shorter than that of equivalent terrestrial microwave systems....
- (3) The satellite must be built to carry the number of radio channels to cover the ultimate requirements of its life span. With terrestrial systems,... add channels progressively to accommodate growth in traffic.
- (4) Transmission over satellite circuits is subject to a significant time delay.

Concern about the use of these circuits in the North was expressed on at least two occasions. An assistant deputy minister from the communications department described the challenge of inter-modulation (see Glossary) as follows:²

¹Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 34, Appendix Q, p. 1739.

²Idem, Proceeding No. 39, p. 2066. Apparently, the standard number of earth stations for interconnection with the INTELSAT system was one or two.

There is a very considerable economic benefit to be gained if we can find better ways of being able to use a larger number of ground stations with the satellite. This particularly applies in telephone communications to the north.

A TCTS executive noted that:¹

The cost of adding another place into which the telephone service could be brought is about \$1.3 million ... you have to be very careful in considering to what size of communities you can afford to do these things....

If you have 100 telephones it means that every telephone per year has to pay \$3,000, forgetting all the other services.

An estimate of the number of places that eventually were added is included in Supplementary Exhibit Q3.

On the one hand, a Bell Canada executive estimated that the average cost increase for telephone subscribers which could be attributed to the installation of a 6-R.F. channel, twin satellite system (see Supplementary Exhibit Q1) would be about ten cents.² On the other hand, a Québec-Téléphone executive predicted that:³

Over a period of five or ten years the customer will pay less than he would be paying otherwise. However, if there is an uncontrolled proliferation of networks without any planning, and if there is waste, it is obvious that the customer will pay more.

A comparison study had been prepared by the TCTS which indicated that

¹ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 34, pp. 1687, 1694-5. One of the possible sites discussed was the community of Resolute. Bell Canada already provided 104 telephones with service using a tropospheric scatter trunk line.

² Idem, Proceeding No. 37, p. 1877.

³ Idem, Proceeding No. 36, p. 1842.

NOTE: The basic rate in Ottawa increased \$2.20 from 1968 to 1979.

a sizeable subsidy would be paid by the common carriers (further details in the next chapter). The cost of a terrestrial trunk line would be either one and a quarter millions or one million dollars. These figures were based upon:¹

The fully-embedded costs of a five-channel system and they ... are the costs to provide facilities from Vancouver to Toronto to St. John's, equivalent to a satellite channel.

A trunk line through space would cost in the:²

Order of \$3.5 million, and there would be the added cost of connecting the satellite earth station to the point of usage, ... we probably end up with an amount of the order of close to \$5 million for the channel.

One of the three keynote variables (further details in the next segment) is the number of access points. While a terrestrial trunk line would have a capacity of 1,200 two-way voice circuits, a satellite *point-to-point* one would have only six hundred unless there were: "... more breakouts, then the capacity is, ... only 330 circuits."³ The second variable is the distance between the earth station and the *point of usage*. The number of towers was subject to an arbitrary standard based upon specifications for tolerable - or near zero - interference between terrestrial and space facilities. The third variable is the assumption that time delays necessitate that each satellite circuit operate in tandem with a terrestrial one.

¹Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 34, pp. 1681-2.

²Ibid, p. 1682.

³Ibid, p. 1692.

As mentioned previously, the federal broadcasting company preferred to display a noticeable lack of enthusiasm during the solitary appearance of its executives before the Commons standing committee.¹ Their position had been made clear to the Committee before Bill C-184 was reviewed and was paraphrased as follows:²

The CBC said they would not find this unfeasible, assuming that they were going to have to do the job; in other words, they were not getting something for nothing.

This posture seems rather peculiar in light of the testimony of a Bell Canada executive that:³

I do not really think that the long-term future of telephone facilities is via satellite.... Domestically, I think that their use is going to be predominantly for television because this is a one-way transmission.

Given that an explicit condition for CBC acquiescence was an enlargement of its annual subsidy (see Supplementary Exhibit 01), the amount of funds which should have been available to occupy three R.F. channels was: "... about \$6.5 to \$7.5 million a year."⁴ A CBC executive also testified that:⁵

¹Op. cit. See page 96.

²Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 29, p. 1501.

³Idem, Proceeding No. 37, p. 1879.

⁴Idem, Proceeding No. 35, pp. 1760-1. The total budget was \$43,500,000.

⁵Ibid, p. 1772.

The parameters of costs, as I understand them, are of the order of \$3 to \$4 million per channel, with a sharp reduction in the probable cost of the third channel.

The keynote item is that the Privy Council Office and/or the communications department seems to have specified significant discounts for occasional usage or bulk rentals greater than two R.F. channels.¹

Within the CBC, there are separate English and French language networks which were set up after a *cause célèbre* in the early 1930s.² Expansion in the South would require two R.F. channels and would involve transmit-receive stations in order to deal with the various time zones³ (see Supplementary Exhibit R1). The cost saving in:⁴

The present English network if the protective microwave system is maintained, to provide against accidents, would be about \$1 million per year. The savings on the building of a French network would be about \$1.5 million.

The northern receive-only earth stations would cost about one-tenth of the price for a telephone receive-transmit one. During the past ten years, there has been considerable divergence of opinion about the proper

¹United States, Federal Communications Commission, FCC 75-924, p. 986.

²Weir, Struggle for National Broadcasting, p. 151.

³Canada, Department of Transport, Evaluation, p. 5. One of the conclusions in this study was that both single- and multi-beam satellites favoured *regional time zone and provincial television requirements*.

⁴Idem, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 35, p. 1774.

design for these television facilities¹ (further details in Chapter 8).

The primary source of conflict was not the technical standards per se but a government policy(s) that the CBC should only:²

Supply television service to communities of 2,000 population and over as funds become available; and on the radio side, to communities down to 500 population as funds become available.

A comparison similar to the TCTS one is even more tenuous since live television coverage and 24-hour service could be provided to the existing thirteen frontier package stations as well as any new ones. In the past, new tapes had to be flown into the broadcasting transmitter site and replaced by hand after ten hours of operation. The savings here were that:³

If we should build 80 stations in the North that would be very profitable, on the other hand, if you build 20, the costs would be very high. As far as the North is concerned, savings are \$700,000 per unit, and with the plans for 1972-74, we reach the break-even point.

The keynote point here is that this unique surplus could be used to selectively expand the CBC coverage or ciphoned off to support Telesat operations.

¹"New Applications: Frontier TV Service," Dateline: TeleSat 3 (Winter 1976): 8. The price quotations received by the Yukon government reportedly were: \$135,000 (Telesat) and \$40,000 (Miller Communications Ltd.). This article suggested a price of \$14,000 per year for the *basic earth station equipment*.

²Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 35, p. 1794.

³*Ibid*, p. 1774.

NOTE: In January of 1970, the plans specified the installation of only 22 RTV stations.

What were the scheduled outlays in the form of cost factors? In a study report for the industry department, RCA Ltd. had stressed that: "... on a project such as a satellite, cost and schedule control are inseparable."¹ The Senate standing committee was assured that in:²

The revenue contracts with the telephone companies and with the CBC,... there will be enough revenue to pay for the cost, the depreciation, the obsolescence - built in, in this kind of technology - and all other costs, to ensure a profit and a return.

Supplementary Exhibit P1 compiles various estimates on the cost factors which were presented during the Common standing committee hearings. The first communications minister assured the committeemen that the actual costs would vary no more than five per cent.³

Using hindsight, three important points were made about launching costs. Any residual illusions about an indigenous booster capability were swept away when the first communications minister stated in the House of Commons that: "... our objective has been to secure the most efficient and cheapest ... services."⁴ A COTC executive noted that the largest cost differential was between the 6- and 12-R.F. channel satellites based upon

¹ Canada, Department of Industry, Study Program for the Design, Development and Supply of a Domestic Satellite Communications System, 5 vols. (Montreal: RCA Limited, Space Systems, 1968), Vol. 4: Program Plan, p. 47.

² Idem, Senate, Standing Committee on Transport and Communications, Proceeding No. 10, pp. 158-9.

³ Idem, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 29, pp. 1482-3.

⁴ Idem, Parliament, Debates (Commons), 1st session, 28th parliament (1968-69): 10115.

INTELSAT data.¹ A Bell Canada executive noted that these costs had escalated sharply during the couple of years since the study for the transport department was completed.²

Supplementary Exhibit P1 also contains estimates of the actual expenditures for a different system. Based upon the information introduced so far and a comparison with Supplementary Exhibits L5 and L6, a number of points should be highlighted. Two were mentioned previously. The onus for r&d costs was removed from the crown enterprise and re-assigned to the communications department. The commitment to recover the procurement costs of the 6/4 GHz facilities before the purchase of new or replacement ones was simply ignored. Even more important was the cost escalation induced by the regression to a system which resembled the one in the *confidential* transport study.

Three satellites with twelve R.F. channels³ were placed into regular service in spite of the following evidence that the installation of such a system was at best premature and at worst unwarranted altogether. The 1966 forecast by RCA Victor Limited indicated that one 12-R.F. channel satellite would have been: "... fully capable of handling a large load of message

¹ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 33, p. 1667. The transport study contained the following estimates of booster costs: Thor-Hoss (\$4,500,000), Atlas-Agenda (\$6,500,000) and Atlas-Centaur (\$14,000,000).

² Idem, Proceeding No. 37, p. 1872.

³ Idem, Telesat Canada, "Low Capacity Voice," Ottawa, Ontario, (Brochure.) The capacity could be 960 one-way or 240 two-way circuits. Ten earth stations with 24-circuits could be provided for exploration camps or forty ones with 6-circuits for very small communities.

traffic in addition to all of Canada's television requirements."¹ One of the conclusions in the transport study was that the single beam unit(s) favoured: "... light development, whereas multi-beam satellites are desirable for heavy developments."²

The first communications minister commented during the introduction of Bill C-184 that a compact system would be installed rather than a Cadillac one since: "... a 12-channel satellite ... could have constituted capacity far in excess of our needs..."³ (see Supplementary Exhibit R1). A COTC executive pointed out during a Commons standing committee hearing that the trend was towards larger and more expensive spacecraft which would, in turn, lower the tariff rate(s).⁴ Would the proportion of unrecoverable costs become inflated as the on-board capacity steadily leaped ahead of Canadian traffic requirements?⁵

The total price of the Anik Is was less but the earth station costs were much greater for a variety of reasons (see Supplementary Exhibits P1

¹Niagara Television Limited and Power Corporation of Canada, "Proposal for a Canadian TV Network and a Domestic Space Satellite Distribution System," sec. 7, p. 3.

²Canada, Department of Transport, Evaluation, p. 5.

³Idem, Parliament, Debates (Commons), 1st session, 28th parliament (1968-69): 7495.

⁴Idem, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 33, p. 1685. The forecast was that the price of a half-voice circuit would drop from \$20,000 to \$4,000 within 10 years.

⁵G.A. Nuefield, R.R. Bowen, and A.R. Kaye, "The Planning of Domestic

and Q1-3). Only two instead of three or ~~four~~¹ Heavy Route stations were installed. The Thin Route system² was expanded for or by Bell Canada then CN Telecommunications³ until it was six times the one proposed by the Northern Electric Company in its report to the industry department:

Year	Addition(s)	Deletion(s)
1973	4	
1974	10	
1975	2	
1976	7	1
1977	5	
1978	3	1
TOTAL	37	2

Only half of the potential receive-only stations which could have generated a surplus on paper were installed. The Frontier TV stations were only permitted after a *cause célèbre*.⁴

Communications Networks," Prepared for the Department of Communications, CRC Technical Note No. 663, Ottawa, Ontario, January 1974, (Mimeographed.)

¹Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 37, p. 1859. Four earth stations would have been the minimum number for the full integration of terrestrial and space facilities for television distribution and message exchange.

²Idem, Telesat Canada, "Low Capacity Voice," Ottawa, Ontario, (Brochure.) The capacity of these earth stations range from 2 to 8 two-way voice circuits.

³"Canadian National," Globe and Mail, 4 January 1978, sec. 2, p. B15. The headquarters of the northern telephone operations was relocated from Edmonton to Whitehorse in October of 1978. Three months later, the operation was reorganized as the Northwest Telecommunications Inc. pursuant to an order-in-council.

⁴Lavoie, "Legal or not this tiny Yukon town gets TV," p. 37. Six months after this article was published, a Bell Canada manager in Whitehorse was appointed as a deputy commissioner for the Yukon Territory.

Year	Remote TV		Frontier TV	
	Addition(s)	Deletion(s)	Addition(s)	Deletion(s)
1973	20			
1974	5			
1975	7			
1976	2	1	6	
1977	1	2	8	
1978	2	1	5	
TOTAL	37	4	19	

Given the Telesat returns actually recorded and the installation of a different system than originally planned, it would seem reasonable to assume that profitability was not the primary system goal. What was the most likely surrogate?

(ii) growth

A proposal which received little media attention was the one that Intelsat IV circuits (see Supplementary Exhibit L5) should be leased from COMSAT.¹ The viability - even preferrability - of this option was brushed aside in the white paper by the reliance upon a chain of assumptions.² The forecasted traffic increases within the next five years were so large that two dubious presumptions were validated. The high fixed costs of a twin 6-R.F. channel satellite system could be offset during the economic life of the spacecraft. That particular technology was the only one which could: "... provide the *jump* in the capacity needed to ensure the rapid expansion in services now contemplated."³

¹Canada, Parliament, Debates (Commons), 1st session, 28th parliament (1968-69): 7493-5.

²Op. cit. See page 35.

³Canada, Department of Industry, Domestic Satellite Communication System, p. 10.

During the Commons standing committee hearings, the basis of the twenty per cent forecasted increase was elaborated upon but only indirectly supported. On one occasion, a federal official stated that this annual growth: "... includes both short distance and long distance communications."¹ On another occasion, a committeeman pointed out that the AT&T president had recently predicted that:²

In ten years 80 per cent of their revenues will be from the transmission of data on private lines which are not regulated today, and not from telephone users.

On a third occasion, more details were provided in that:³

The rate of growth in communications loads ... runs to 10 or 15 per cent per annum in telephone services, and it probably is as high as 30 per cent in data transmission.

In other words, data transmission was an area where satellite circuits have a significant advantage.⁴ This kind of traffic probably was the one referred to in the white paper as being a market where competition would be appropriate.⁵ Ten years later, the common carriers described the

¹ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 29, p. 1500.

² Idem, Proceeding No. 34, p. 1721.

³ Idem, Proceeding No. 37, p. 1859.

⁴ G. Owen, "Satellites Waiting for Computers to Catch Up," Dateline: TeleSat 2 (April 1975): 2. The broadband capability of the Anik I and II are: 36 and 54 MHz, respectively.

⁵ Canada, Department of Communications, Multiservice Cable Telecommunications Systems - The Wired City, Telecommission Study 8(d) (Ottawa: Information Canada, 1971), pp. 22, 47, 50.
NOTE: The use of six wires per subscriber instead of paired ones would

unsubstantiated assumption¹ upon which their resistance to the operational adoption of satellite communications may have been built as follows:²

The provision of two or more services is more economic on one network than on a separate network for each service. For instance, data services integrated on the basic telecommunications network can be provided more economically than on a completely separate structure.

As mentioned previously, the federal government introduced an interim policy on licences for new radio relay facilities.³ Was it promulgated to forestall any further expansion of terrestrial facilities⁴ by approved carriers or new entrants? Was it instituted to justify a series of uneconomic enlargements of the domestic satellite communication system?

Growth targets for the other areas were more fully discussed in the *confidential* reports commissioned by the transport and industry departments. The transport study was based upon the following premises:⁵

have increased the bandwidth to 1 MHz. Conversion to coaxial cable would have pushed the limit up to 300 MHz. Other problems remain when equipment designed for voice traffic is used for data transmissions.

¹Op. cit. See page 35.

²Canadian Telecommunications Carriers Association, "Submission to the Consultative Committee on the Implications of Telecommunications for Canadian Sovereignty," Ottawa, Ontario, 5 January 1979, (Printed.)
NOTE: According these common carriers, two or more systems would result in *an injudicious reliance on the foibles of the market place.*

³Op. cit. See pages 90-1.

⁴Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 34, p. 1713.

⁵Idem, Department of Transport, Satellite Communications in Canada,

. Alternate 1 - Supplementary TV distribution to communities which either now have no TV service or an unsatisfactory grade of service combined with a multiple-access telephony and data service to remote communities

. Alternate 2 - Combined use of a satellite distribution system for TV and radio programs as well as for multiple-access communications with remote points and terrestrial trunks for TV and radio over existing common carrier facilities

. Alternate 3 - Similar to Alternate 2 with the exception that interstudio trunks would be provided via satellite system rather than by terrestrial trunks

. Alternate 4 - Distribution of the national TV and radio programs ahead of time from a central studio to each region via satellite circuits with retransmission of the delayed national program from transmitters in each region to satellite for regional distribution to local TV stations, plus multiple-access telephony and data service to remote regions.

Several pages later, the following supplementary information was given:¹

The initial (1970 through 1972) requirements can be summarized as follows:

- 4 channels for multiple-access
- 4 channels for trunk telephony
- 12 channels for three national TV programs
- 4 channels for four ETV programs....

In the second time frame (1977) the use of two satellites is required to meet the estimated traffic....

The first satellite takes all the multiple-access and telephony trunk traffic plus three national TV channels (CBC English, CBC French and CTV).

The second satellite takes all the time zone traffic, including the ETV channels.

5 vols. (Ottawa: Northern Electric Co. Ltd., Research and Development Laboratories, 1967), Vol. 2: Satellite Systems, by Hughes Aircraft Company, Space Systems Division, sec. 1, p. 1.

¹Canada, Department of Transport, Satellite Systems, sec. 4, pp. 5, 8.

Before the report was officially submitted, the approach to these options was revised in that:¹

It was decided to modify these alternatives in two ways. First, it was agreed to include east-west trunk telephony. Initially, this would include links between Montreal/Vancouver and Montreal/St. John's, but would grow to links between all major cities over 1000 miles apart. Second, it was decided that rather than treat these *alternatives* as alternatives, they would be treated more as growth potential.

The three quotations contain several noteworthy items. Data transmission via satellite circuits was confined to *remote regions*. If the federal government and/or common carriers reversed their position(s) on the exclusive use of 6/4 GHz satellite communications facilities for television distribution or data signal exchange, it was done before the transport study was drafted. Was *trunk telephony* added in order to use up the available R.F. channels and/or to legitimize later demands for a spare satellite in orbit?

The industry department study was deceptively similar in that:²

This plan has three major growth stages, a pilot stage, an interim stage and the final operational configuration. The initial or pilot system consists of the minimum system of one or two satellites providing television in two languages to two regions, east and mountain time zones and also the essential arctic message requirements. In this period limitations would be accepted on eclipse and sun transit backup. The interim stage could be an expansion of the pilot system to fully meet all traffic requirements with sun transit and eclipse protection for the life of

¹ Canada, Department of Transport, Satellite Systems, sec. 2, pp. 1-2.

² Idem, Department of Industry, Canadian Domestic Satellite Study,

the initial and interim satellites. The final stage, possibly covering the second five years, would entail the development of each orbit position to a maximum 12 channel capacity. This would be accomplished by either the replacement of the existing six channel satellites with a 12-channel satellite or by addition of a second six channel satellite having a complementary frequency and polarization to the satellite on station.

When the features in the quotations on the previous two pages are compared with the characteristics outlined in Supplementary Exhibit R1, a bevy of subtle modifications can be discerned. There would be pilot and interim phases to the operational adoption. Was this plan the basis for the sections in the Telesat Canada Act of 1968-69 which allowed for a provisional then permanent board of directors? The number of R.F. channels aboard the first batch of flight spacecraft was halved. The point at which a second satellite would be launched was changed from 1977 to sometime between 1971 and 1975. Two R.F. channels for northern multiple-access and one for national television programmes had been re-classified as spares. Two R.F. channels for east-west message traffic would be unnecessary or unrentable until the final phase.

The documents commissioned by the transport and industry departments were only rarely mentioned during the standing committee hearings. Five months after the ~~last~~ ones were submitted, a communications department official testified that there had been cost cut-backs through reductions in the orbital life (see Supplementary Exhibit P2) and batch size.

sec. 3, p. 2.2-1.

NOTE: The plan in the Northern Electric report was based upon an industry department briefing which was held on 1 April 1968.

The former was lowered from six to five years and the latter was changed from three to two flight spacecraft.¹ In addition, he pointed out that:²

The reduced system with one satellite could always be completed at a future year, either 1975 or 1978; whenever required we could have two satellites. Also, a good part of the savings were achieved by reduced ground system network.

A CBC executive outlined the R.F. channel disposition below:³

Canadian Broadcasting Corporation	
English language	1
French language	1
Time delay work	1
Bell Canada experiments	1
Trans-Canada Telephone System	1
CN/CP Telecommunications	1

A Bell Canada executive answered a query on this subject from a committeeman as follows:⁴

The system that we proposed two years ago... was a different kind of system. It was a higher-capacity system because at that time our understanding was that there would be a greater demand for TV across Canada than now appears to be the case.

When the features in these quotations are compared with the ones in Supplementary Exhibit R1, a number of variances are discernable and a couple of questions are generated. Only the pilot stage in the *confidential* study commissioned by the industry department was being presented for

¹ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 29, p. 1478.

² Ibid, p. 1480:

³ Idem, Proceeding No. 35, pp. 1752-3.

⁴ Idem, Proceeding No. 37, p. 1872.

parliamentary and public review. The focal point for the distribution of CBC programmes had been switched from the entire country and trans-Canada hook-ups to the North and an expansion of the French-language network. Was the performance guarantee while the flight spacecraft was in storage increased from two¹ to five or eight years? Was the draft legislation for an ETV agency² already in serious trouble on account of resistance from provincial government(s)?

Supplementary Exhibits L8 and L9 outline the past record and a projection of excess capacity in the domestic satellite communication system from 1973 to 1985. These figures are probably conservative ones since they do not fully reflect the impact of innovative techniques³ which either were or might have been adopted. The actual traffic volumes over and capacity utilization of any given R.F. channel are *strictly confidential* - perhaps even *most secret*.

Not too surprisingly, there were two warnings during the Commons standing committee hearings on the possibility of excess capacity. A Bell Canada executive pointed out on one occasion that:⁴

¹ Canada, Department of Industry, Canadian Domestic Satellite Study, sec. 9, p. 10.

² Idem, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 35, p. 1779.

³ "Telesat to Inaugurate World's First Commercial Use of TDMA," Dateline: TeleSat 2 (April 1975): 5. The conversion of the Allan Park - Harrietsfield link from FDMA to TDMA increased the capacity from 240 to 400 two-way voice circuits.

⁴ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 37, p. 1863.

If we get into appreciable industrial development we are going to need something like a satellite system in the North.

Yet, only two new mining sites were mentioned in later testimony. The assessment below was offered on another occasion:¹

In the initial stages the financial risk would be from under-utilization rather than from technological failure and unforeseen costs arising therefrom.

Based upon the material presented in this segment, it would seem reasonable to presume several things. Organizational growth was the surrogate systemic sub-goal yet some sort of tacit territorial assignment has been effected during the past decade and a half which guided each successive allocation² (further details in Chapter 9). The process began when approval was given - directly or indirectly - by the federal Cabinet to the agreements-in-principle. Territorial assignments may have been along the following lines. The CBC and Bell Canada would deliver the bulk of broadcasting³ and telecommunications services, respectively, throughout the North. The common carriers would retain the regional television⁴ and any

¹Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 38, p. 1980.

²R.F. Wells, "Communications Present and Future for the North," Speech delivered by the Canadian National Telecommunications general manager of Northwest Telephone Operations to the Northern Resources Conference, Whitehorse, Yukon Territory, 20 October 1978, (Mimeographed,) p. 7. In the late fall of 1978, CNT replaced a single-channel VHF radio system owned by Canada Tungsten with a \$800,000 microwave link from Watson Lake to Tungsten. The towers covered a distance of 150 miles and three of them had to be located atop 7,000-foot mountain peaks.

³Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 35, p. 1797.

⁴Idem, Telesat Canada, Annual Report 1977, p. 8.

new data transmission traffic in the South. How could their exclusive access be protected without a formal public decree?

(d) Product goal(s)

The primary product goal is: "... that circuit performance in regard to quality and serviceability be equivalent to that of terrestrial facilities and that the effects of time delay should be minimized."¹ As outlined in the second chapter, the fundamental weakness of satellite communications is that the space relay(s) must be replaced rather than repaired. Did the common carriers utilize this flaw to set unrealistic product goals for satellite circuits in the same way that Bell Canada may have deployed untenable² and unwritten³ standards for the attachment of foreign equipment? In order to answer this query, three sub-goals will be examined: time delay, duplicate in-orbit spacecraft and reserved channels then interconnection distance.

(i) time delay

There is a time delay with satellite circuits of about two hundred and fifty milliseconds because the signal must travel twenty-three thousand miles out into space and return the same distance. Specifically,⁴

¹Canada, Department of Transport, Requirements, p. 53.

²Canadian Press, "Bell said to set unreasonable rules to corner markets," Citizen, Ottawa, 18 January 1978, sec. 1, p. 22.

³Idem, "Bell insists competitors obey rules it doesn't have to write," Citizen, Ottawa, 26 October 1978, sec. 1, p. 22.

⁴Canada, House of Commons, Standing Committee on Broadcasting, Films

A single hop, with just one satellite system being used? This would clear up the echo situation pretty satisfactorily. You still, in my opinion, would not have as sharp a circuit, as good a circuit in terms of two-way conversation as you have via microwave or via transatlantic cable, but you would have a satisfactory circuit.

Ever since the earliest days,¹ the use of the telephone set has entailed a certain amount of learning and most human ears can correct for a variety of distortions.

One reference in the transport study to this subject was that:²

The effects of a pure transmission delay on an otherwise normal telephone facility are very subtle. As the magnitude of the delay approaches and exceeds human reaction time ... *double talking* may occur.

During a Commons standing committee hearing, another potential problem was explained as follows:³

In Canada we anticipate more than two ground stations - that is, a large number having access to the satellite. This creates a technical problem. As you increase the number of transmissions going into the satellite, you increase the possibility of interference between these channels - it is called cross-talk, intermodulation.

When a Canadian banking executive appeared before the Committee, he

and Assistance to the Arts, Proceeding No. 37, p. 1862. The ITU standard for submarine cables was 0.4 of a second. The amount on satellite circuits would be 0.6 of a second.

¹ Patten, Pioneering the Telephone, p. 33.

² Canada, Department of Transport, Requirements, p. 86.

³ Idem, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 39, p. 2066.

described his experience with a call over a satellite circuit as follows: "... I am told it is a third of a second but it certainly, as far as I could see, created no more delay than a normal call."¹ Another reference in the transport study seems to represent the real crux of this matter. It is that: "... the problem of delay becomes more serious at higher data signalling speeds."²

(ii) duplicate in-orbit spacecraft and reserved R.F. channels

Two of the most crucial differences between the system debated in the House of Commons and the one actually installed is the presence of one or more spare satellite(s) in orbit³ per frequency band and two reserved R.F. channels per transponder. The need for back-up channels can be traced back to the studies commissioned by the industry department (see Supplementary Exhibit P2). The designation of reserved channels did not become prudent⁴ until after the design submitted by the Hughes Aircraft Company of a modified version of the Intelsat IV (see Supplementary Exhibit L1), i.e. without duplicate travelling wave tubes, was accepted (details in Chapter 8).

The necessity for a back-up spacecraft had been rejected during the

¹Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 38, p. 1959.

²Idem, Department of Transport, Requirements,

³"Alaska Linked to Lower 48 Via Anik II," Dateline: TeleSat 1 (April 1974): 1. As shown in Supplementary Exhibit L2, the Comstars cover different portions of the USA.

⁴Canada, Telesat Canada, Annual Report 1970 (Ottawa: Telesat, 1971), p. 4.

first Commons standing committee hearing on Bill C-184. An assistant deputy minister testified that:¹

We could have had two sixes with a system which would have been 99.8 per cent reliable, but for most of the requirements of Canada - that is, television to the North as well as television east-west and some voice circuits - we did not need that much reliability.

From where did the idea arise that a spare satellite in orbit was necessary?

One of the reasons offered by the Federal Communications Commission for the rejection of the RCA application to renew its leases with Telesat Canada under very favourable terms was as follows:²

In the remote event of a catastrophic failure, temporary use of the Telesat Canada satellites could presumably be arranged until such time as Western Union either launched a third satellite ... or moved Westar II from 91° to 90°.

It would seem reasonable to assume that the same consideration would have been extended to and could have been contractually arranged by the crown enterprise.

One of the volumes in the transport study contains a directive that: "... a spare satellite must be available in order that the common carriers can maintain their reliability objectives."³ Another volume contains the qualification that: "... the spare satellite is placed in stationary orbit, but floating freely with all transponders turned off. Such an arrangement is

¹Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 29, p. 1480.

²United States, Federal Communications Commission, FCC.74-1418, p. 409.

³Canada, Department of Transport, Satellite Communications in Canada, 5 vols. (Ottawa: Northern Electric Co. Ltd., Research and Development Laboratories, 1967), Vol. 3: Ground Stations, by Northern Electric, p. 5.

relatively costly."¹ In a study report (see Supplementary Exhibit R1) by the same company but for the industry department a year later, spare R.F. channels were available at certain times but the third flight spacecraft remained on the ground.

A Bell Canada executive commented upon the technical standards for southern trunk lines as follows:²

We in this country and in the States for that matter, have grown used to a very reliable telecommunications system and statistically the amount of outage is something less than 1/10 of 1 per cent of the time. The reason for this is that we in almost all cases have back up, sometimes several routes, and we keep them hot, as we say, by routing part of the traffic all of the time over each of the routes.... In this case, the only back-up we would have would be the terrestrial systems. The scheme of having one rather than two satellites in the air, which I presume is justified economically, does something of course for continuity of service.

One noteworthy item is that these back-up arrangements were between common carriers and consortia as well as with U.S. telecommunications companies.³

The 1967 transport study contains the following reference to a major

¹Canada, Department of Transport, Evaluation, p. B4.

²Idem, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 37, pp. 1863, 1864. The outage with the tropospheric scatter system to Resolute Bay was 3 per cent during one-way conversation for 3-4 hours per day of operation.

³Idem, Proceeding No. 34, p. 1715. In 1972, an inter-governmental arrangement was finalized concerning the provision of temporary and peripheral service or assistance between domestic satellite communication(s) systems in the USA and Canada.

policy change concerning terrestrial and space trunk lines:¹

The Trans-Canada Telephone System has outlined its broad guidelines regarding route and facility diversity planning. In the past its objective has been to try and maintain at least 30% of the message circuits in service, in addition to all private line services, in the case of failure of any one route. It's new objective starts at maintaining at least 50% of the circuits in a cross-section, progressively improving this to at least 70% by about 1980, in the event of a failure of any one route.

The noteworthy item in this quotation is the historical difference in the standards for *voice* and *private* circuits. Was this policy revised in anticipation of the advent of computerized switching systems?²

As far as northern telephone traffic was concerned:³

Services leave something to be desired in terms of quality because of the magnetic effects, and so on ... the average over a period is something on the order of a 3 per cent to 5 per cent outage, which is horrendous in terms of communications between Montreal and Toronto, but may be tolerable between here and Frobisher Bay.

The above figures were for a tropospheric scatter system but the average one for HF radio systems was: "... at best, 60-75% availability."⁴

What were the main sources of risk inherent in satellite

¹Canada, Department of Transport, Requirements, p. 81.

²"Information Processing: Data Communications - A Stampede to packet switching." Business Week, 18 December 1978, p. 92G.

³Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 37, p. 1906.

⁴"Satellites and the North: The Sky's the Limit for Future Development," Dateline: TeleSat 2 (April 1975): 4.

communications? One piece of evidence was that INTELSAT: "... programmed their satellites on the basis of one failure out of every four."¹ The NASA launch record for civilian boosters was publicly available for insurance rates and other kinds of calculations. Were component or systemic malfunctions a more serious problem with a Canadian-built spacecraft (see Supplementary Exhibits P2 and L7)? The Commons standing committee may have been lead to assume so by the testimony of the Canadian banking executive. He warned that: "... the chances of failures are not a matter of probability theory."²

Several quotations have been selected in order to characterize the Telesat performance to date. The record for traffic operations:³

Shows very creditable levels of availability
- for example, for the television services at
NTV's and HR's, 99.98%; at the RTV's, 99.77%;
for message services at the Thin Route Stations
and the HR's, 99.47% and 99.99%, respectively.

The record for station-keeping shows:⁴

An accuracy of .05 of a degree in latitude and
longitude is being maintained on Anik I and,
by design, at .1 of a degree on Anik II.

The exact importance of one or two spare satellites in the achievement.

¹Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 38, p. 1996.

²Ibid, p. 1927.

³"Operations Management a Constant Watch on Telesat Reliability," Dateline: TeleSat 2 (April 1975): 3. The code letter stands for: Network Television, Heavy Route and Remote Television earth stations.

⁴Golden, "Anik - Experience With a Domestic Communications Satellite

of these records is difficult to assess¹ but three unexpected problems were encountered with the 6/4 GHz facilities (see Supplementary Exhibit L8).

The first one was that:²

Immediately prior to the launch of Anik I, a very high rate of failures was experienced in a crucial subsystem common to all earth stations in the Telesat network.

The second one started with a performance aberration in the Northern Electric receivers aboard the Anik I-F-1 during the solstice periods. The third one involved a premature burn-out of a Hughes travelling wave tube aboard the Anik I-F-3 (details in Chapter 8).

(iii) interconnection distance

In order to place this sub-goal into the proper context, a brief historical review will be presented. It took twenty years and *Cold War* security requirements concerning duplicate - even multiple - routes and facilities before the TCTS could eliminate the last of three gaps³ and compulsory reliance upon telegraph circuits.

The Bell Telephone Company of Canada charter was amended before the Government Organization and Telesat Canada Acts were passed. By design or coincidence, Bill C-104 granted statutory authority to the customary

Serving the Public," p. 6. This accuracy eliminated the *lazy-S* rotation of the beam around the focal point of the receiving antenna.

¹"Launch plans," Dateline: TeleSat 4 (Spring 1977): 2.

²Golden, "Anik - Experience With a Domestic Communications Satellite Serving the Public," p. 6.

³Bonneville, "Trans-Canada Telephone System," pp. 231-2.

practice of Bell Canada whereby the company sets the standards for the attachment of *foreign* equipment.

A Bell Canada executive broached the subject of interference as follows:¹

The angle of approach of the satellite signal is sharper because of the curvature of the earth. Therefore, the probable incidence of interference is greater here than it would be across the California south for example.

The reference to *California* seems odd until the estimated distance mentioned to the Commons standing committee is compared with the one in the *confidential* transport study. A TCTS executive testified that:²

Satellite earth stations have to be removed approximately 80 miles - we do not know for certain but this is the order of magnitude - from the major centres because of frequency interference.

A Bell Canada executive introduced one qualification; namely, that:³

If we get directional beams from a satellite which are narrower ... it might be possible to narrow this distance a little.

The Northern Electric engineers seem to disagree with the above prognosis since two years earlier they wrote that:⁴

¹ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 37, p. 1859.

² Idem, Proceeding No. 34, p. 1682. Apparently, ITT published a manual on interference specifications based upon INTELSAT and COMSAT requirements. The Bouchette site was about 80 miles north of Ottawa. The Allan Park site is 100 miles west-north-west of Toronto. Both were selected by Bell Canada and the latter may have been owned by that company or related parties.

³ Idem, Proceeding No. 37, p. 1861.

⁴ Idem, Department of Transport, Satellite Communications in Canada.

Generally, no earth station should be located within a 10 mile wide corridor centered around the main antenna for a distance out to 40 miles.

Any difference of opinion was quite significant since an assistant deputy minister estimated that the four towers needed to span the hundred miles would cost around two hundred thousand dollars a piece.¹ Contrary to the commitment in the white paper, the federal Cabinet seems to have found it expedient to allow the Telephone Association of Canada to specify the primary product goal as a basic prerequisite for any kind of interconnection. One question remains. Are these technical standards a *reasonable* target or merely the result of key facility redundancy in order to meet military requirements and/or prevent competitive entry?

(e) Derived goal(s)

The derived goal was defined as:²

The company shall utilize to the extent practicable and consistent with its commercial nature, Canadian research, design and industrial personnel, technology and facilities.

5 vols. (Ottawa: Northern Electric Co. Ltd., Research and Development Laboratories, 1967), Vol. 4: Interference, by Northern Electric, p. 34.
NOTE: One interviewee stated that 6/4 GHz earth stations had been located in city cores without undue interference. Another interviewee argued that the common carrier position was too conservative since the terrestrial beams tend to run east-west while the space ones come in on a north-south plane.

¹Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 39, pp. 2080-3.
NOTE: Apparently, the criteria were primarily based upon a TAC report entitled: "Co-ordination of Terrestrial Radio Relay and Communications Satellite Systems in Canada" and dated March 1968.

²Idem, Laws, Statutes, etc., Telesat Canada Act of 1968-69,

The provisions in Section 5 can be traced back to three sources. The PCO study on the upper atmosphere and space program recommended that there should be *co-ordination* between the contracts for r&d activities and the procurement of key facilities.¹ The science community cautioned that: "... nothing should ever be invented twice."² The white paper specified that: "... Canadian industrial research and development must be an integral part of a communications satellite."³

As mentioned previously, policy directives from the federal Cabinet were introduced in the broadcasting segment when the Canadian Radio-Television Commission was organized. Why was Section 5(2) labelled a *consideration* rather than a *directive*? One factor may have been the *practicable and consistent with its commercial nature* qualification within the section itself. Another factor may have been the drafting of Section 5(1) which deliberately left the word *commercial* ambiguous. A third factor was discussed in the first part of this chapter. The federal Cabinet rather than the Telesat board was the final arbitrator of *reasonable and appropriate* Canadian content in the satellites and earth stations.

Why should this objective be classified as a derived goal? Responsibility for the federal space laboratory was assigned to the communications ministry before Bill C-173 or C-184 were debated then discreetly transferred to the department. Sections 6(1)(a) and (d) in the Telesat Canada Act of

sec. 5(2), p. 3.

¹Op. cit. See page 105.

²Canada, Science Council, Space Program, p. 7.

³Idem, Department of Industry, Domestic Satellite Communication System, p. 54.

1968-69 authorize the crown enterprise to conduct its own research and development. Section 5 of the Department of Communications Act of 1968-69 does not contain a similar provision (see Supplementary Exhibit G1).

As mentioned on two previous occasions, the onus for r&d activity was also discreetly transferred to the communications department. As will be outlined in the eighth chapter, the amount of technological transfer from a developmental spacecraft (CTS-1)¹ to the second generation of key facilities (Anik II) does not correspond in any meaningful way with either the direction of development or the size of the expenditures. Even more important, different criteria were applied during the procurement of the Anik I and II satellites (see Appendix I).

The right to issue binding policy directives forged by the central agencies and cabinet committees may be expanded by explicit grants in the proposed crown corporations act² and telecommunications one.³ Consequently, it would seem reasonable to presume that the provisions under review were included on behalf of the federal Cabinet and were a success as a managerial innovation.

¹A. Casey-Stahmer, "The Canadian Communications Technology Satellite Experiment Project," Prepared for the Department of Communications, Social Policy and Programs Branch, Ottawa, Ontario, January 1975, (Mimeographed.)

²Canada, Privy Council Office, Crown Corporations, sec. 6, pp. 51-2.

³Idem, Department of Communications, Bill C-24, sec. 9(1)(2), p. 10. On 9 November 1978, this bill was re-introduced as C-16.

3. Summary

Which goals were implemented, displaced or ignored? By design or chance, the request of a provincial official that there should be: "... an indication in the Bill of the purpose of the Corporation - perhaps clearer statements..."¹ was one of the few suggestions that the federal government ignored. The *real* purpose of Telesat Canada and *raison d'être* for the incorporation of a crown enterprise has never been officially disclosed to date. A plausible one based upon the evidence compiled in this case study will be presented in the ninth chapter.

If: "... clarification of purpose or objective is a necessary condition of public and management accountability..."² it would seem reasonable to draw one conclusion. Telesat accountability to anyone other than the *main contributors* was curtailed when common shares were not issued to the general public. It was reduced even further with the failure under review. One exception was the brief exposure³ which accompanied the application for approval of the TCTS/T Agreement.

A subjective evaluation and overview of the goal achievement in this sector and the contribution by Telesat Canada is presented in Supplementary Exhibit T1. An obvious deduction is that the prime parliamentary directive -

¹Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 38, p. 1976.

²R.W. Sexty, "Government: The Profit Role in Crown Corporations," Canadian Business Review (Summer 1978): 10.

³Hutchison, "Definitive story on the Telesat/TCTS affair," p. 16.

that the crown enterprise should have operated on a commercial basis - has been violated. It must be rejected since there is ample evidence that the members of the Commons standing committee and others were well aware that any profit projections and traffic estimates were of dubious quality. On one occasion, an Opposition critic stated in the House of Commons that:¹

It is unfortunate that this most important and most costly project should be launched from a pad of such deep and thick ballyhoo.

Later on, this committeeman added an incisive prediction that:²

I have no hesitation in predicting that the \$65 million figure will go down in history as the most conservative estimate ever made by a Liberal minister, and there have been some dandies in that category.

What about the central hypothesis? Relative to the role specification factor, a new assessment can be made. Since four Heavy Route stations were not installed and the procurement of replacement spacecraft has reached the design specification stage (details in Chapter 8), neither 6/4 GHz and 14/12 GHz facilities nor television and telecommunications services to the North and in the South will be fully-integrated in the foreseeable future (details in Chapter 9). Consequently, the central hypothesis is still valid in that Telesat Canada will continue to serve the federal government as a common carrier and some or all of the approved telecommunications organizations as a carriers' carrier.

¹Canada, Parliament, Debates (Commons), 1st session, 28th parliament (1968-69): 10108.

²Ibid, p. 10112.

Little other progress has been made except for three things. On the one hand, the most noticeable feature about goal definition is the absence of input by the Telesat management. On the other hand, the telephone common carriers seem to have been accorded an undue amount of deference in this matter. The reservations expressed at the end of the previous chapter about cabinet power and will to exercise policy-making control have now become serious doubts.

What about the set of criteria concerned with the productiveness of system planning, allocation of satellite and earth station ownership and administrative control? Given that *commercial* was interpreted only by the first communications minister to mean *earning a profit*, new doubts have been raised about the productiveness factor in that efficiency - the paramount measure of performance for the telephone common carriers - seems to have been set aside. Any informal and/or unwritten policy, directive(s) (see Supplementary Exhibits S2 and S3) would have been converted into legal phraseology. Presumably, these words would have been included in or omitted from the clauses in the *confidential* service agreements, membership one (TCTS/T Agreement) and/or perhaps even *secret* memorandum(s) of understanding.

CHAPTER 7: TELESAT CANADA - EXPECTATION FORMATION

Chapter Seven sets out to determine what expectations were formed about the domestic satellite communication system by which party(s) and to gauge their importance relative to each other. In so doing, the focal point of the analysis will shift even farther across the interface between esoteric policy consideration(s) and day-to-day Telesat operations. Collaterally, the central issue of stability versus resource development or status quo versus productive system planning moves to the forefront.

The chapter is divided into two sections: kinds of expectations and summary.

1. Kinds of Expectations

Section One seeks to answer three questions. What were the most likely subject(s) covered during the negotiations in Telesat board meetings and elsewhere about the proper premise(s) for system planning choices and definitive arrangements for revenue sharing? Did the Telesat directors have a uniform vision¹ of an ideal domestic satellite communication system? Was Telesat Canada imbued with a spirit of co-operation or did the behaviour of its directors reflect the *two solitudes* and mistrust pleaded at the end of the fifth chapter?

¹R.K. Greenleaf, The Servant as Leader (Cambridge, Mass.: Center for Applied Studies, 1970), p. 41.

As mentioned in the second chapter, it took a group of U.S. companies using eminent legal and political advisers over ten years to work out a general agreement on wireless and broadcasting. In the case of Telesat Canada, the coalition members might have to reach a uniquely-Canadian agreement. Perhaps for the first time in the country's history,¹ they would have to do so in advance² of an American solution which could be adopted with only minor modifications. The testimony of a provincial official once again described the nexus of their task.

What we now need is your signature on the contract. There I think, is the key; not the obligation of the act; because the act in itself cannot obligate Alberta Government Telephones. ³

Assuming that the directors were paid three times the standard fee⁴ on account of the amount of work and the nature of their duties (see Supplementary Exhibit N2), the pertinent sessions⁵ probably extended from the fall of 1969 until near the end of December in 1976.

Answers to the questions on the previous page will be recorded in the

¹Beigie, "Economic Framework," in Telecommunications, ed. English, p. 39.

²Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 39, p. 2064.

³Idem, Proceeding No. 38, p. 1972.

⁴Op. cit. See page 114.

⁵Golden, "Memorandum Concerning Canadair Limited and The de Havilland Aircraft of Canada Limited," p. 1. The above period may have lasted until the spring or summer of the next year since this report was delayed on account of unexpected problems at Telesat Canada. One explanation is the appeal to the Cabinet and lawsuits over the TCTS/T Agreement. Another explanation is the large amounts of supervision which the Anik IA-F-1 needed.

following segments: priorities, technological opportunity, re-distribution of traffic, cross-subsidization and ownership of key facilities.

(a) Priorities

As mentioned in the first chapter, the central agencies carefully screened the information for release to the public. Did their censorship also impair an attempt by certain members of the standing committees to ascertain if the cabinet decree to proceed and the ministerial protestations of a need for haste¹ were sound judgements? During his third appearance before the Commons standing committee, the first communications minister remarked that:²

A critical path, leading to the construction of the satellite itself and its launching, demands that initial contracts for the satellite be given in early May or June.

Another attempt to clarify this matter is illustrated by the dialogue below:³

Mr. DeBane: Sir, would you please tell us what would happen if... this Act were not enforced

¹Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 39, pp. 2040, 2089.
NOTE: The House Leader had indicated that Bill C-184 was not a high priority item. The Committee began to sit only in the mornings after this proceeding and the chairman pointed out that the Queen's Printer was giving them priority over 125 to 130 other reports.

²Ibid, p. 2040. The Anik I procurement contract was signed three months after the last possible date specified by the Minister.

³Ibid, p. 2063.

by the end of the session.

Mr. Kierans: It would be a catastrophe for this project, because we could then not be able to proceed with the building of a satellite, and with the issuing of bonds for that purpose.

One portion of this argument is spurious. Given the testimony pointed out in the fourth and fifth chapters plus the passage of Telesat By-Law 13, it would seem reasonable to assume that the central agencies and the first communications minister were well aware of two things. A bond issue was unwise on account of a possible transfer of voting control to the common carriers. A bond issue was unfeasible without that feature or risk warnings to the general public which could have re-opened the entire debate.

In order to sort out the testimony on the need for a domestic satellite communication system in the 1970s, four perspectives will be used: communications policy field versus other sectors, satellite communications versus terrestrial technology, integrated system versus specialized one(s), and overview.

(i) communications policy field versus other sectors

What rank should be accorded to this industry? One of the main assumptions in the white paper was that: "... the development of a nation is closely linked to the development of its communications systems."¹ Two major research programs were launched in the wake of the proclamation of Bill C-184. Thirty or so studies were commissioned by the communications

¹Canada, Department of Industry, Domestic Satellite Communication System, p. 36.

department but their terms of reference were vetted by the Privy Council Office.¹ Later on, Bell Canada funded a complementary one which was edited by a university professor and published as a textbook. One of its authors indirectly questioned the white paper assumption on the previous page.

There is a growing feeling that telecommunications capability should be a basic component in Canada's economic infrastructure. Customers throughout Canada are demanding access to high-quality, modern facilities. Again, population mobility and business needs are factors in this trend, but in addition great emphasis has been given to the view - right or wrong - that Canada's future economic growth will be retarded if its telecommunications industry does not keep pace with new developments and make the results available to all regions of the country. 2

What was the main source(s) of concern that was expressed before the review of Bill C-184? The salient ones were that provincial government(s)³ and/or private undertaking(s) might finalize or seek to arrange access to foreign spacecraft. These fears were based upon the premise that:⁴

¹ Canada, Department of Communications, Annual Report 1969-1970, p. 21.

² Beigie, "Economic Framework," in Telecommunications, ed. English, p. 39.

³ Canada, Parliament, Debates (Commons), 2nd session, 27th parliament (1967-68): 726. On 31 May 1967, the Secretary of State for External Affairs confirmed in the House of Commons that discussions were underway between officials at the Quai d'Orsay and from the Québec government concerning a communications satellite (Symphonie) agreement. On 1 December 1978, the fourth communications minister became an advisor to the external affairs minister with special responsibility for the Agency for Cultural and Technical Co-operation in Paris.

⁴ Idem, Department of Industry, Domestic Satellite Communication System, p. 36.

The development of communications satellites is proceeding rapidly in Europe and the United States, and these will soon be laying down signals over parts of southern and eastern Canada.

The question raised by these quotations is whether political expediency rather than social or economic well-being was the basis for sectoral and other priorities.

(ii) satellite communications versus terrestrial technology

What was the correct time for the adoption of each generation of key facilities but especially for the first one? This aspect is one of the most elusive parts of any inquiry into both proper priorities and the central issue of the status quo versus productive system planning.

The prediction below was made in the House of Commons during the session before Bill C-184 was debated and reviewed:¹

The day will come when⁴ broadcasting will cease to use the spectrum in the conventional fashion ... with the possible exception of satellite transmission.

A year later, this prediction was supported² by the testimony of a TCTS executive.

Within the next three or four years we are facing a major development in high capacity cable which could reduce the cost of transmission by a factor of three or four on the terrestrial system.³

¹Canada, Parliament, Debates (Commons), 2nd session, 27th parliament (1967-68): 5678.

²"Light now in use in telephone test," Citizen, Ottawa, 12 May 1977, sec. 1, p. 19. The above forecast was incorrect by about ten years.

³Canada, House of Commons, Standing Committee on Broadcasting, Films

A federal official testified that: "... in the long run, even in the short run, there can be a problem in finding adequate space for all concerned."¹ In this instance, *space* meant the availability of R.F. channels and geostationary orbits. The keynote item is that the word *can* rather than *would* was used by both the telephone executive and the government official. Was high-risk satellite communications about to be supplanted by a superior technology² which could be adopted incrementally in local switched networks and/or long-line circuits? Was the *haste* necessitated by the existence of a rare opportunity for a cabinet foray(s) plus a unique but *transient* source of leverage for the central agencies and communications department?

A committeeman commented upon the correct timing for operational as opposed to commercial adoption as follows:³

I do not think that what the Minister is proposing can, in dollars and cents, be considered very practical at the moment, but I think that the Minister is correct in getting Canada into this kind of telecommunications field.

Another member balked at the inability of the first communications minister and departmental officials to satisfactorily explain the need for this venture at all. He declared that: "... I would like to go on the record

and Assistance to the Arts, Proceeding No. 34, p. 1697.

¹ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 41, p. 2150.

² Op. cit. See page 68.

³ Canada, House of Commons, Standing Committee on Broadcasting, Films

as opposing the legislation on the grounds that it is totally unnecessary at this time."¹

At several points in an earlier proceeding, a TCTS executive had predicted or promised that:²

In our opinion, the main benefit from the satellite system will be the distribution of television signals to the remote areas and the far north. However, in relation to telephone service, a satellite system of this type will offer initially only marginal improvements at substantially higher costs....

The advantages of a satellite system for east-west telecommunications will also be marginal. The existing ... systems are sufficiently ample and diverse to meet all present requirements and are capable of being expanded, as needed, to cover the requirements for at least ten years at low incremental costs....

We would be using the satellite, so we will know what it will do.

Given the policy change on route diversity introduced in the previous chapter, the use of the word *present* was an accurate statement but may in effect have been a misleading one.

In a later proceeding, the deputy minister of the communications department reacted as follows:³

I am not saying this is the position of the carriers - but that they are not interested in carrying communications to the North, that they

and Assistance to the Arts, Proceeding No. 41, p. 2126.

¹Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 40, p. 2129.

²Idem, Proceeding No. 34, pp. 1676, 1677, 1697.

³Idem, Proceeding No. 38, p. 2006.

believe it takes a lower priority than other things they have in mind.

Using hindsight, another aspect of the *real* thrust of the cabinet foray(s) under review was alluded to a few moments later.

They have a good case in saying that they could do most of what they wanted to do by expanding their existing system ... But they still do not cover large areas of the country that we want to cover. ¹

Assuming for the moment that the promotion of improvements in public utility services for rural areas is a provincial responsibility,² it would seem reasonable to presume that the federal government was responsible for similar commissions or omissions in remote and northern regions.

As pointed out in the first chapter, the *missing* participants were the private broadcasters and CATV operators. On the one hand, the necessity of common carrier participation was considered dubious by at least one committeeman.³ On the other hand, the need for government participation was queried as follows:⁴

I understood the Minister to say that he agreed with the philosophy that the private sector of the economy of this country should do the things which it can and that the public sector should only become involved when a private sector could not do a particular job.

¹Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 39, p. 2080.

²Idem, Department of Communications, History of Regulation, pp. 74-85.

³Op. cit. See page 111.

⁴Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 41, p. 2147.

The first communications minister pleaded that common carrier participation was necessary since:¹

Canada has not enough capital available for it to bear the luxury of duplicating investments in the same area....
We should not have excess investment in any industry because we are so short of capital in this country.

Given the evidence already presented to the Committee about route diversity, this argument was an odd one. Specifically, the distribution of separate trans-Canada circuits in the 1970s would be: TCTS (1), TCTS/Québec-Téléphone (1), CN/CP Telecommunications (1), and Telesat Canada (1). Was the new TCTS policy merely a matter of convenience rather than a technical imperative?

Two proceedings later, the Minister testified that the above funds: "... will come from Canadian sources but it will come from different sectors of the capital market."² A committeeman interpreted his remarks in the following way:³

What he is really saying to us is that the government is not able to get this money and therefore, he has to bring in the private sector.

The first communications minister tried a different tack to clarify his earlier remarks when he testified as follows:⁴

¹ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 39, pp. 2050, 2072.

² Idem, Proceeding No. 41, p. 2133.

³ Ibid, p. 2134.

⁴ Ibid, p. 2137.

I think that this is one of the areas in which the private sector can contribute a great deal, and we have devised the bill in order to enable them to participate and to contribute.

There is another possible interpretation of the thrust of these ministerial remarks. If the federal government used an excessive amount of the available Canadian savings, then provincial and municipal governments might be forced to pay a premium and/or to use foreign capital markets. More importantly, there was a shift in the focal point of the review process. Instead of a sustained examination of the premise(s) for the entire undertaking and for the participation of each party, there was an irrelevant assessment of the impact of large capital acquisitions by the federal government on domestic money markets.

If this sub-segment presents an image of confusion, it does no more than illustrate the impression of *ballyhoo* generated by the evidence presented during the Commons standing committee hearings. Serious doubts were expressed about the real need to install anything other than an experimental satellite communications system consisting of one satellite and three or four earth stations. Two different kinds of key facility (6/4 and 14/12 GHz) have been placed into service or procured to date. The net result is either two mistakes or improprieties. These systems have a capacity which dwarfs the one offered by the system proposed during the debate on and review of Bill C-184. These systems may still only be prototypes of a fully-integrated system (details in next two chapters).

Three questions must await the introduction of new evidence and therefore will not be answerable until almost the end of the ninth chapter. What could have justified such a priority given that the operational adoption was premature on technical and economic grounds? What caused the basic

change in policy? When was it actually promulgated?

(iii) integrated system versus specialized one(s)

How much importance should be accorded to the integration of key facilities as opposed to their specialization? One of the most noteworthy features common to the documents released to the public and testimony presented before the standing committees is the absence of a debate on this matter. Five pieces of evidence were uncovered by the research program on this subject.

In the session before Bill C-184 was introduced, the following expression of hope was recorded:¹

A satellite is capable of providing us with television on a virtually universal basis. I do not see why Canadians have to be slaves either to United States programs or to C.B.C. and local programs.

A Québec-Téléphone executive testified during the Commons standing committee hearings that the search was for: "... an orderly integration of the new technology and other technologies ... into the existing framework."²

Almost a decade later, a Saskatchewan Telecommunications counsellor advocated Telesat membership in the TCTS on the grounds that:³

The agreement is a further step toward one integrated telecommunications system which is essential if all subscribers are to be connectable to each other.

¹Canada, Parliament, Debates (Commons), 2nd session, 27th parliament (1967-68): 617.

²Idem, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 36, p. 1844.

³Letter of Intervention from the general counsel of Saskatchewan

The section in the white paper entitled: "The Need for a Decision" and the map¹ which compared existing terrestrial and proposed satellite coverage are also relevant. In juxtaposition, they imply that the unique attributes of satellite communications were closely connected with the distribution of television. Four years later, the annual report of the communications department states that:²

The system will provide a large capacity for east-west television, telephone and data transmission and is to make possible the introduction of telephone and television communications to many remote areas of Canada.

When these quotations are compared and the wording in each one carefully examined, there appears to have been two priority changes. The southern system had become more important than the northern one. The exchange of signals was as important as the distribution of television programmes.

(iv) overview

Given the evidence presented in this segment, a number of inferences can be drawn. The operational adoption priority was set by the federal Cabinet whereas sectoral and integration ones were specified by the common carriers. The basis for these expectations is suspect on two counts. There may have been *in camera* and *quid pro quo* exchanges. The usual basis for system planning - efficiency over a period of five perhaps ten years -

Telecommunications to the secretary general of the Canadian Radio-television and Telecommunications Commission, Regina, Saskatchewan, 7 April 1977, (Mimeographed.)

¹ Canada, Department of Industry, Domestic Satellite Communication System, p. 49.

² Idem, Department of Communications, Annual Report 1971-1972, p. 2.

seems to have been replaced by something entirely different. What was the most likely surrogate?

(b) Technological opportunity

Two factors have been presented on numerous occasions and in different parts of this case study. In the past, major technological developments were almost invariably transferred to Canada by foreign parent organizations. The success of the scientific spacecraft - Alouette 1 - seemed to proffer a rare opportunity for sustained indigenous development of satellite communications.

The white paper contained the warning that:¹

Insofar as the possibility of Canadian industrial participation in developing and producing satellite communication equipment is concerned, ... as foreign competition develops, the prospects for later entry into the market diminishes rapidly with time.

The keynote words in this quotation are *possibility* and *equipment*. Had the federal Cabinet and/or central agencies already reached the conclusion that the enormous American expenditures for space r&d precluded a viable industry?² What about the manufacture of general purpose satellites or the sale of

¹Canada, Department of Industry, Domestic Satellite Communication System, p. 36.

²Wheelon, "Business Perspective of the Communications Satellite Market," pp. 2, 3, 6, 7. Some of the expenditures mentioned in this speech were: INTELESAT (\$540,000,000 in total); USAF (\$1,000,000,000 per year); Comsat General (\$200,000,000); and Telesat Canada (\$160,000,000).

turn-key system(s)?¹

The study report submitted by the Northern Electric Company to the industry department pointed out a collateral factor. A delivery schedule of less than thirty months: "... would require considerably greater U.S. participation, with reduced technology transfer to Canada, but at comparable cost (due to higher labour rates) and performance."² A TCTS executive conceded during a Commons standing committee hearing that: "... if you do not get in on a technology at the beginning and grow with it you wipe yourself out from benefits in the future."³ This argument would indeed justify a premature adoption and temporary absence of productivity as the main premise of any system planning choice(s). Not too surprisingly, the statement below was made in the House of Commons after the bid for a supposedly *Canadian-built* batch of satellites was rejected in favour of one for *off-the-shelf* American units (details in the next chapter).

We are facing a general climate in Canada of growing concern over the penetration of American technology into the Canadian economy.⁴

What was really happening? The science community had strongly and repeatedly recommended centralization, increased funding and higher priority

¹"In business this week: People - Satellite shopping," Business Week, 15 January 1979, p. 46. According to this announcement, the Chinese government was ready to spend \$500,000,000 in order to buy an entire system.

²Canada, Department of Industry, Canadian Domestic Satellite Study, pp. 1.1-1 and -2.

³Idem, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 34, p. 1709.

⁴Idem, Parliament, Debates (Commons), 3rd session, 28th parliament

for *Canada's Interests in Space*.¹ They argued that these r&d activities should be re-classified as a *prototype major program* whose purpose would be to channel and co-ordinate expenditures through: "... large multi-disciplinary, mission-oriented projects having as a goal the solution of some important economic or social problem."²

A novel feature which is a common denominator in their reports was that the onus for success was placed primarily upon the federal government. This projection may have occurred - at least in part - for the following reasons. Only one common carrier had begun to make significant budgetary allocations for a corporate r&d complex.³ Its manufacturing subsidiary had undertaken these expenditures only after independence from the Bell System became mandatory under the provisions of a 1956 Consent Decree. Are these, relatively small budgets merely a token gesture?⁴ Were certain ones approved in order to thwart the establishment of an indigenous space industry (further details in the next segment)?

(1970-72): 9690.

¹Canada, Science Council of Canada, Towards a National Science Policy, pp. 35-6.

²Ibid, p. 29.

³Beigie, "Economic Framework," in Telecommunications, ed. English, p. 98.

⁴R.C. Scrivener, "Why Northern Telecom must grow in the U.S.," Financial Post, 18 March 1978, sec. 1, p. 6. In 1971, Bell Canada - Northern Electric Research Limited was organized as a joint venture. A cause célèbre had erupted in 1969 when Bell Canada persuaded the Science Council chairman to appear on behalf of that corporation and attest to its good record in this area before a Canadian Transport Commission hearing. By 1978, this author and chairman of the holding company who had volunteered or been reassigned

In order to gauge whether or not a technological opportunity really ever existed, it would seem prudent to re-examine one aspect of the central issue introduced in the previous segment: an integrated system versus specialized one(s). The related but easily overlooked dimension is time in the form of various generations of key facilities.

(i) an integrated system

A TCTS executive stressed that:¹

There are problems with the integration we have to find out about and the only way we can find out is to put them on to see how they work.

As highlighted in the previous chapter, there were at least two technical problems. Integration increased the probable incidence of interference with terrestrial trunk lines. It also required multiple-access to the satellite which produced inter-modulation between carrier signals.

A provincial official declared that:²

The first satellite is really a geared-up type of plant, that is, an experiment ... But the big opportunities are in the next range of satellites.

The source of this prognosis may well have been one or both of the confidential and for departmental working purposes only studies prepared

to that position in the manufacturing associate was advocating that the most important and advanced aspect of corporate r&d efforts should be *conducted and controlled* in the USA but *directed* from Canada. Four factors render the corporate record for r&d suspect; the failure of the receivers aboard the Anik I-F-1; the SP-1 electronic switching unit may have been on the design board before 1956; the collapse of Microsystems International Ltd. and the claim by Siltronics Ltd. that it developed the E-phone.

¹Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 34, p. 1714.

²Idem, Proceeding No. 38, p. 1980.

for the transport and industry departments (see Supplementary Exhibits L5-7 and R1). The former contains the following conclusion:¹

Single beam satellite is favourable for light initial development, whereas multiple-beam satellites are desirable for heavy developments.

The keynote word in this quotation is *desirable*. The latter contains the following elaboration:²

The suggested frequency and polarization plan allows for 12 channels in the allocated 500 MHz frequency spectrum with adjacent channels having alternate polarization. Thus, if six or fewer channels are required, a single polarization receiver and receive antenna can be used.

It was neither expedient nor possible for the common carriers to prevent operational adoption. Given that the minimum number of Heavy Route stations for full integration was four but only two - perhaps three - were installed, it would seem reasonable to presume that the common carriers bargained for two restrictions. One concession would involve a refusal to interconnect except on a limited basis for two reasons. This posture would minimize the installation of southern earth stations which might cause interference. It would also limit capital expenditures on plant and equipment which could become - in whole or part - obsolete in the very near future (details in Chapter 9). The other concession would involve delaying tactics relative to a firm policy on earth station ownership rights until the second generation³ - perhaps with higher capacity (see Supplementary

¹Canada, Department of Transport, Evaluation, p. 5.

²Idem, Department of Industry, Canadian Domestic Satellite Study, sec. 1, p. 4.1-1.

³Idem, House of Commons, Standing Committee on Broadcasting, Films

Exhibit C1) and different frequency bands - was available.

(ii) specialized one(s)

The first communications minister uttered three comments which hinted at the possibility of specialization. At the close of a hearing which tended to focus on future innovations, he commented upon the implications of any delay as follows:¹

You have a lot of problems. You have a lot of scientists and people who are waiting to go to work on this. What do you do with them meanwhile? Get them started on another project, let us say a resource satellite or something completely different,... if this bill did not go through?

Earlier on, he had suggested that: "... in a third generation of satellites, you can see direct broadcasting from satellites to homes and so on."² Then, he qualified - almost eliminated - that scenario as a viable option when he stated that:³

What we want is a board of directors who have a certain balance of power and authority and who can say, *This is the way technology is going. These are the latest developments. Here is a possibility of us having the first satellite direct to home and so on. Shall we take advantage of it or not?* The people who might propose this in that board eight or nine or seven years from now may not be able to win their point. But at least they will be able to give it a very good try.

and Assistance to the Arts, Proceeding No. 39, pp. 2071, 2079.

¹ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 39, p. 2089.

² Ibid, p. 2064.

³ Ibid, p. 2071.

Was direct-to-home broadcasting merely another *stalking horse*?¹ Two pieces of evidence support such a presumption. As mentioned on two previous occasions, the communications department was assigned responsibility for the bulk of any r&d effort concerning satellite communications. The 1971/72 annual report described the purpose of a project which came to dominate departmental expenditures for a number of years as follows:²

Satellites which result from the CTS experiment could provide the scientific basis for further improving services to small out-of-the-way communities by giving them access to the full range of communications services offered in developed areas.

Two fiscal years later, it was described as: "... entirely experimental, may be the forerunner of a new generation of communications satellites which Canada will require in the 1980s."³ The keynote items in these quotations are the use of the words *could* and *may*.

A detailed analysis will be presented in the next chapter. The quotation below, however, suggests the existence of other expectations.

When men find themselves differing over the philosophy or the contractual jurisdiction - to the jeopardy of scientific development -, then it is necessary to find the key logs which block the difficulties and to get on with the development. ⁴

¹Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 38, p. 1976.

²Idem, Department of Communications, Annual Report 1971-1972, p. 2.

³Idem, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 38, p. 1997.

⁴Idem, Department of Communications, Annual Report 1973/74 (Ottawa:

What were these *blocks*?

(c) Cross-subsidization

Cross-subsidization was one source of conflict bewailed by the common carriers at great length. In a later study, this kind of obstruction would be defined as follows:¹

Only when governments determine that subsidization is necessary but are unwilling to make explicit subsidy payments do we have a *real* structural problem arising from a social policy decision.

It would seem reasonable to assume that this criticism would be equally applicable to but even more valid for a policy choice based upon political expediency (details in Chapters 8 and 9). Limited resources and restricted access to information precluded an in-depth analysis of this crucial area. Expectations about the various forms of cross-subsidization which were mentioned in documents and testimony can and will be presented.

A TCTS executive stressed that the keynote difference between the consortiums' consortium proposal and the one authorized by Bill C-184 was that:²

Information Canada, 1974), p. 8.

¹Beigie, "Economic Framework," in Telecommunications, ed. English, p. 177.

²Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 34, pp. 1688, 1715.
NOTE: The telephone common carriers use the word *telephone* or *telecommunications* depending upon which one favours their argument(s).

If we had built the system and the system became profitable then the whole profits of that system would have reverted back.... We are talking here of cross-subsidization not within one operating centre, but two - cross-subsidization from the telephone user into another organization.

A provincial official expressed concern about the potential impact on rural improvement programs and testified that: "... we are very heavily dependent upon Trans-Canada traffic. It makes the difference between our solvency."¹

The telephone common carriers were openly against an issue to the general public except under stringent conditions or through regular channels. Ostensibly, the grounds for their position was that unrealistic rates² for R.F. channels were being set by the communications department in order to assure Telesat shareholders of a return. A Bell Canada executive described their expectations as follows:³

Quite frankly, if the telephone users are exposed to paying additional charges to support the first few years of the satellite corporation, it appeared to us to be reasonable... that the ultimate benefits would all flow back to the telephone subscribers and would not find their way to the general public who theoretically would not have supported the first few years of the satellite corporation.

The general public have not been allowed to subscribe for shares so

¹Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 38, pp. 1961-2.

²Ibid, p. 1973.

³Idem, Proceeding No. 37, p. 1855.

this form of cross-subsidization has so far been prevented. Otherwise, the common carriers were not against that form of price averaging in principle or in this case since:¹

The only way the common carriers have been able to provide a superlative quality of service to all Canadians at equal rates ... has been through the principle of cross-subsidization - whereby profit-generating services subsidize basic services seen to be the right of every Canadian.

In other words, one of a host of assumptions which underlie the above argument is that:²

Universal service can be guaranteed only when the common carriers are able to subsidize their ... investment by operating in the more lucrative urban areas.

The residual concern based upon the general criticisms of the common carriers³ was that:⁴

It is the degree of cross-subsidization required in the satellite proposed that makes this problem unusual....

It is vital that... we do not counter our basic purpose, namely, to provide efficient, low-cost telecommunications service to our customers.

A Bell Canada executive added that:⁵

¹Canadian Telecommunications Carriers Association, "Submission to the Consultative Committee," p. 7.

²R. Stephens, "Broadcasting cross-ownership," Globe and Mail, 6 January 1979, sec. 2, p. B3.

³Op. cit. See, page 188.

⁴Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 34, pp. 1677, 1678.

⁵Idem, Proceeding No. 37, p. 1909.

The rentals we would have to charge for television channels via satellite would be about three or four times higher than we are now charging under the microwave agreement.

Given the distinct possibility that the CTV and CBC Network rates were set artificially low and the actual freeze on the installation of stations in the Remote TV network at about the break-even point, caution seems doubly warranted. Three pieces of evidence are inconsistent with any declarations that the subsidization of the first generation of key facilities did not occur.

The first piece is that the developmental costs and write-off terms which were criticized by the common carriers were removed from or ignored in the claims of Telesat profitability. Excluding the costs incurred by the procurement of an excessively large system, these changes should have substantially lowered the rates towards their equivalent costs of one and a quarter million dollars per R.F. channel. Yet, the calculations in Supplementary Exhibit 02 indicate excess revenue payments to the crown enterprise between 1963 and 1977 of about seventy-seven million dollars.

The second piece is the statement that:¹

Additional funds will be provided the CBC for its so-called *accelerated coverage plan*.... Pressure is also exerted on Bell Canada to expand and upgrade telephone communications in remote areas of sparse population. The capital costs of these projects is immense, but we do not apologize for one moment in expecting people in Canada who already have these services to help us and share the cost.

¹Canada, Parliament, Parliamentary Debates (Commons), 2nd session, 29th parliament (1974): 392.

This statement might be an excellent disclaimer¹ and projection of responsibility except for five items. An explicit subsidization formula for northern circuit(s) which would be leased by Bell Canada was not tabled during the Commons standing committee hearings. Departmental wireless facilities were not rationalized and switched to satellite circuits.² A minuscule number of subscribers were added (see Supplementary Exhibit Q3). There was only a marginal improvement based upon reasonable technical standards. A number of qualifications were introduced along with the policy guidelines in the proposed Telecommunications Act (see Supplementary Exhibit G2). The third piece of evidence is that CN/CP Telecommunications withdrew from the pooling arrangements and the TCTS renewed its service agreement only for one year.

Based upon the evidence presented so far, it would seem reasonable to assume that subsidization was not mandatory. The onus for any cross-subsidization rests solidly upon the federal Cabinet which controlled the Telesat board during the execution of the initial procurement contracts, restrained CBC expansion and condoned - perhaps even promoted - multiple-access usage without guaranteed access to sufficient traffic volumes.

(d) Re-distribution of traffic

A second source of conflict was the threat of traffic changes. In

¹Op. cit. See page 189.

²"Satellites and the North: The Sky's the Limit for Future Development,"

the second chapter, it was pointed out that Telesat circuits could displace existing terrestrial ones. In the third chapter, it was highlighted how the federal Cabinet promulgated an interim policy which could have been used to deter the installation of any new microwave trunk lines. A federal official described the pivot point even more starkly when he testified that:¹

Does future expansion proceed by way of terrestrial facilities, or does it proceed along the path of satellite communications? This is what we are entering into now.

What were the exact traffic stakes? On the one hand, a provincial official conceded that it was unfeasible to utilize wire, wireless and radio relay by tower to service very remote regions. Not too surprisingly, one of the design characteristics of the spacecraft described in one of the industry department studies seemed ideal for this purpose in that:²

One of the RF channels will be utilized for Northern communications. Up to six small carriers each one loaded with a maximum of 60 telephone messages can be handled by one transponder.

On the other hand, those officials emphasized that their expectations³

Dateline: TeleSat 2 (April 1975): 4.

¹ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 39, pp. 2080-1.

² Idem, Department of Industry, Study Program for the Design, Development and Supply of a Domestic Satellite Communications System, 5 vols. (Montreal: RCA Limited, Space Systems, 1968), Vol. 2 - Part 2: Spacecraft Design - Mechanical and Support, p. 5.

³ Idem, House of Commons, Standing Committee on Broadcasting, Films

did not encompass any losses in four categories of customers: business establishments or private residences, military installations, CBC regional service and telemetry from oil and gas fields.¹

The potential impact of satellite communications on the distribution of traffic over different key facilities cannot be fully illustrated; however, unless two distinctions are made. They are: trans-oceanic versus trans-continental relay and one- versus two-way communications.

(i) trans-oceanic versus trans-continental relay

A Bell Canada executive predicted that: "... there is a strong probability that half of the transatlantic conversations from Canada will be via satellite."² A switch of overflow traffic³ from submarine cables and coast-to-coast wireless facilities was already underway. Several factors might justify the refusal of an American regulatory commission to authorize any new TAT cable facilities.⁴ The costs and risks were being reduced with each successive generation of satellites. The comparative advantage of existing facilities was narrower for trans-oceanic than trans-continental relay. A lower probable incidence of wireless interference but a higher one

and Assistance to the Arts, Proceeding No. 38, p. 1977.

¹"Telesat Forecast of Procurement Requirements Presented to Canadian Communications Industry," Dateline: TeleSat 1 (April 1974): 4. The 50 or so Canadian Arctic Gas Pipeline earth stations would have looked at two satellites.

²Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 37, p. 1863.

³Idem, Proceeding No. 33, p. 1659.

⁴Op. cit. See page 83.

for cable interruption of service¹ made satellite circuits an excellent alternative.²

(ii) trans-continental, one-way communications

From the start, there could have been an almost total switch of television traffic.

The marriage of satellite technology for long haul applications and cable distribution networks in urban centers provides a natural cost effective means since satellites are not distance sensitive, while cable networks provide the lowest cost in local distribution.³

In the fifth chapter, it was pointed out that the common carriers may have reduced the tariff rates on television signals for at least five maybe ten years. In this way, re-distribution could have been minimized until the over-build capacity designed into the terrestrial trunk lines⁴ was utilized and the second generation of key facilities was available.

(iii) trans-continental, two-way communications

In general, the exchange of signals by satellite relay represented both threat and opportunity. Alberta Government Telephones may have been in the process of losing substantial amounts of military traffic from radar

¹Baker, Marconi Company, p. 154. Upheavals of the ocean floor have caused failures on at least two occasions.

²"Across Canada: Cable failure delays calls to Europe," Globe and Mail, 2 January 1979, sec. 1, p. 8. When the CANTAT-2 cable failed on 31 December 1978, delays of up to 3 hours were encountered on New Year's Day even though traffic was switched to satellite circuits.

³Canada, Telesat Canada, "Television Distribution Via Canada's ANIK Domestic Satellite," Ottawa, Ontario, (Mimeographed,) p. 2.

⁴Op. cit. See page 68.

stations in the DEW and Pine Tree Lines to the American command centre in the Rocky Mountains. Bell Canada may have been trying to use its agreement-in-principle for the lease of R.F. channel(s) to lever or contain competitor(s).¹ Was an earth station not installed in Goose Bay on account of a tacit understanding or provisions in the TCTS/Québec-Téléphone Agreement?

As mentioned on several previous occasions, the shared policy of integration was the most controversial aspect of any scheme to re-distribute traffic in a limited and *orderly* manner. The white paper was quite misleading since the difference between one- and two-way communications, i.e. television distribution and multiple-access for the exchange of signals, was not made explicit.

Instead of thirty relay stations to traverse one thousand miles only one is necessary.... In satellite communications, the distance between points is relatively unimportant.... It is in this respect, the ease with which distant points may be linked, that the satellite enjoys an enormous advantage. In the case of surface systems, the cost and complexity grow according to the distance covered, nature and accessibility of the intervening terrain. This is not to say that conventional techniques are made redundant by the satellite. ²

The white paper was also misleading in that it implied that the comparative advantage of satellite circuits would result in their exclusive use for signals which travelled greater than a specific distance. What few

¹ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 36, pp. 1823-4.

² Idem, Department of Industry, Domestic Satellite Communication System, p. 12.

people knew was that the common carriers had already indicated that this figure would not be acceptable. Notice had been served through two assumptions used by a Bell Canada subsidiary in the *confidential* transport study. Specifically, it would be 1978 before:¹

The economic cross-over distance will be in the order of 1000 miles, and that 20% of all circuits greater than this distance will require space facilities.

The cross-over point and traffic allocation figure are two related items which warrant further examination. In a 1966 submission to an American regulatory commission,²

AT&T estimated that the cross-over point where satellite transmission is economic in comparison to terrestrial facilities is approximately 1,300 miles for non-TV traffic.

Two years later, a Bell Canada executive testified before the Commons standing committee that:³

Economic studies in Bell would indicate that once this system is in a going viable condition - we could economically provide long distance telephone circuits, .. over 2,000 miles in length.

The above traffic allocation figure raises two questions. Was the allocation of only one-fifth instead of one-half⁴ or more of the toll traffic a bargaining ploy? Was it related to the new TCTS policy on route diversity?

¹Canada, Department of Transport, Requirements, p. 56.

²United States, Federal Communications Commission, Report and Order, No. 16495, Washington, D.C., March 1970, (Mimeographed,) Appendix B, Footnote 5, p. 12.

³Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 37, p. 1879.

⁴Op. cit. See page 214.

In a Telecommission Report, the common carriers claimed that:¹

The Department of Communications since its formation, has tended to encourage the use of common carriers to furnish intermediate and long haul private microwave facilities.... With respect to CATV inter-city distribution cable, the telephone carriers consider that ownership by their companies should be the normal arrangement.

In the spring of 1977, the second argument of the Saskatchewan - Telecommunications general counsel for Telesat membership in the TCTS reads as follows:²

The agreement will permit more effective long-range planning which will make the optimum use of both satellite and terrestrial facilities and ensure system back-up and diversity.

The keynote word is *ensure* since the number of back-up options and alternate routes had probably exceeded the TCTS guidelines³ - perhaps even reached almost ludicrous percentages - in order to protect *private line* circuits.

A year later, the TCTS and Telesat Canada reached an agreement whereby each common carrier would seek rate increases for direct-dial calls of less than one thousand two hundred miles using terrestrial facilities.⁴ The crown enterprise would seek or announce rate reductions for ones of greater than

¹Canada, Department of Communications, Analysis of Relationships, p. 37.

²Letter of Intervention from the general counsel of Saskatchewan Telecommunications to the secretary general of the Canadian Radio-television and Telecommunications Commission, Regina, Saskatchewan, 7 April 1977, (Mimeographed.)

³Op. cit. See page 212

⁴Canadian Press, "Phone firms seek increase in long-distance call

one thousand four hundred and fifty miles using satellites.¹

Consequently, it would seem reasonable to assume two things. The common carriers prevented any significant re-distribution of traffic² and they confined even the potential for Telesat growth to the northern regions.³ The twenty per cent restriction on traffic was lifted by the continental telephone consortium as part of a complex exchange involving an increase in the cross-over distance.

(e) Ownership of key facilities

A third source of conflict probably received the most media attention. As outlined in the second chapter, satellite communications requires two different kinds of key facility: earth stations and satellite(s). In addition, each organization prefers to own them in order to increase their degree of independence.⁴

(i) earth stations

In their first brief, the common carriers had almost casually referred to: "... the proper allocation of relatively low cost earth

rates," Globe and Mail, 17 March 1978, sec. 2, p. B5.

¹Op. cit. See page 84.

²H.J. Boyle, "The Jockeying to decide the TV set's future," Globe and Mail, 8 December 1978, sec. 1, p. 7.

³"Telesat Forecast of Procurement Requirements Presented to Canadian Communications Industry," Dateline: TeleSat 1 (April 1970): 4.

⁴Canada, Telesat Canada, "The Solution to Federal Government Northern Communications," Ottawa, Ontario, December 1974, (Brochure.)

stations."¹ Did the use of the words *proper* and *low cost* mean that they had always intended to minimize - perhaps even shun - the ownership of 6/4 GHz, single-beam facilities until satellites were available with higher frequency bands and/or multiple beams?

Ministerial rejection of their consortiums' consortium scheme² prompted an elaboration of their position in the second brief: On one page, they specified that:³

5(e) The Telecommunications Companies should own the ... earth stations connecting with the terrestrial network, including those in remote regions....

5(g) All terrestrial systems, including the connecting equipment in the principal earth stations, would continue to be owned and operated by the Telecommunications Companies.

On the next page, they added that:⁴

The satellites and those earth stations which contain facilities for test and control should rest with the Corporation.

The other earth stations ... should be owned by the Telecommunications Companies responsible for serving the territory....

Earth stations which function only to receive television signals and are associated directly with TV broadcasting stations could be owned by the broadcasters or government department involved....

Telecommunications Companies should be fully utilized in the maintenance and operation of the Corporation's earth stations.

¹Trans-Canada Telephone System and CN/CP Telecommunications, "Canadian Communications Satellite System," p. 7.

²Op. cit. See page 100.

³Trans-Canada Telephone System and CN/CP Telecommunications, "Considerations and Recommendations," p. 6.

⁴Ibid, p. 7.

In other words, satellite circuits should only be used to link the existing operations, regional exchanges or new local ones in rural or remote regions served by these *approved* common carriers.

The Science Council suggested that the: "... provision, use and control ..." ¹ of key facilities should be delegated to the board of the proposed crown company. One exception was a *buy Canadian* policy in that: ²

Systems management contracts and prime contracts for the development and supply of the major hardware portions of the program, should be awarded directly to Canadian industry. This should not, however, preclude the negotiation of arrangements with other countries or international agencies on a reciprocal basis for the sharing of development and production in the space field.

The keynote word in this quotation is *awarded* (further details in the next sub-segment).

The white paper contained a rejection of the first part of their expectations. Ostensibly, the grounds were that: "... critical judgements necessary in the specification and control of a satellite system, require expert knowledge and experience." ³ Indeed, the federal government believed so strongly that it must have its own expertise that an entire department was set up for this purpose rather than as a constituency agency. ⁴ Another

¹ Canada, Science Council, Space Program, p. 9.

² Ibid, p. 13.

³ Idem, Department of Industry, Domestic Satellite Communication System, p. 52.

⁴ G.B. Doern, "Horizontal and Vertical Portfolios in Government," in

aspect of the federal position outlined in the white paper was that: "... satellites and earth stations together would form a single system under the control of a single management."¹

The first sign of a subtle policy adjustment can be traced back to Bill C-104 which up-graded the customary practices² of Bell Canada on interconnection into a vague statutory right.³ The second indication can be gleaned from the provisions in the TCTS/T Agreement. The ones highlighted in Supplementary Exhibit K2 not only match but fulfill most of the common carrier expectations expressed in their briefs to the transport minister. The third sign occurred when the communications department announced a review of the ownership policy.⁴ Two factors which are relevant to the news release have already been mentioned. CN Telecommunications had begun to install a Thin Route network of its own. The federal Cabinet had varied the CRTTC disapproval of the TCTS/T Agreement but the fourth communications minister refused to release the discussion paper portion of the memorandum to

Issues in Canadian Public Policy, eds. G.B. Doern and V.S. Wilson (Toronto: Macmillan, 1974), pp. 310-8.

¹ Canada, Department of Industry, Domestic Satellite Communication System, p. 46. In the past, the COTC owned and operated central switching offices. Bell Canada erected and operated duplicate ones adjacent to them in order to protest this policy.

² Bell Canada, "The Bell Telephone Company of Canada: Act of Incorporation and Amendments," Montreal, Québec, 12 April 1978, (Mimeographed,) p. 28.

³ Op. cit. See page 207.

⁴ "Ottawa overrules CRTC's decision on Telesat," Globe and Mail, 4 November 1977, sec. 2, p. B4.

NOTE: This policy paper and the national pay television model are scheduled for presentation at the federal-provincial ministerial conference in March.

cabinet.¹ Reportedly, the reason was that: "... Mrs. Sauve would have to ask permission of her Cabinet colleagues, though the decision in fact rests with her."²

The fourth indication was the grant of exclusive ownership rights at about this time to the CBC for the 6/4 GHz earth stations connected with its networks.³ The new 14/12 GHz ones will be located atop the main central switching office building of the designated common carrier for any given territory or province. Assuming for the moment that the TCTS/T Agreement allows the common carriers to exercise a *de facto* administrative control over Telesat Canada, a grant of ownership rights would be consistent with the *letter* but not the *spirit* of the *single management* policy in the white paper. What about the other key facility?

(ii) satellite(s)

A lack of international law⁴ and the high risk factor rather than the above policy has always been the main deterrant against common carrier ownership of satellites.⁵ Consequently, their expectations focused on the

¹H. Windsor, "The freedom-of-information drive: Papers freed by Ottawa may not be very exciting but they're seen as start," Globe and Mail, 15 October 1977, sec. 1, p. 3.

²"The Ottawa Scene: Better yet, don't write more than a page," Globe and Mail, 14 November 1977, sec. 1, p. 8.

³Canada, Telesat Canada, Annual Report 1976 (Ottawa: Telesat, 1977), p. 4.

⁴A.E. Gotlieb and C.M. Dalfen, "International Relations and Outer Space: The Politics of Co-operation," International Journal 25 (Autumn 1970): 685-703.

⁵Canada, Department of Transport, Evaluation, p. 51.

question of which organization(s) would be given the contract(s) to design and/or manufacture these spacecraft.

The manufacturer which was generally believed to occupy the vanguard was RCA Victor Limited of Montreal, a subsidiary of RCA Corporation of New York City. Its involvement can be traced back to the promotion of the concept of television stations linked by satellite circuits to form a system whose: "... technical make-up ... is well within the capabilities of Canadian industry to design and manufacture ... to standards of reliability and performance equal to that of U.S. industry."¹ These two companies lobbied for a request by the federal government of a *sole-source* bid. Their expectations rested upon the premise that experience with sub-contract work on scientific and military spacecraft constituted enough expertise to justify an outright award of *systems management* and *prime* contracts to design and build two prototype and experimental satellites.

The RCA plans to construct a domestic American satellite(s) and the COMSAT contract for a design study of a similar system by RCA Astro-electronics may have prompted the following promise:²

A 1969 start could place Canada in a position of leadership with the first commercial satellite system among Western countries; and enable early influence of other countries to adopt the Canadian system concept.... could lead to prospective future sales by Canadian industry.

¹Niagara Television Limited and Power Corporation of Canada, "Proposal for a Canadian TV Network and a Domestic Space System," part II, sec. 5, p. 9.

²RCA Victor Limited, Space Systems Division, "A Canadian Satellite: to serve Canada's Domestic Communications Requirements," Montreal, Québec, December 1968, (Brochure,) p. 10.

The keynote item is the lack of a firm commitment on exports.¹ A tentative explanation for this omission is that the real leadership position in the communications satellite field was held by some other organization. Specifically, it resided with the first entrant to the commercial market and/or any agency(s) that concentrated on military applications.

The other manufacturer seeking sub-contract work - perhaps even the *systems management* and *prime* contracts themselves - was the Northern Electric Company, a wholly-owned subsidiary of Bell Canada. This corporate duo lobbied for an open competition rather than sole-source bid request. Their expectations rested upon the following technical premise:²

Canada has not yet been involved in a project involving design and production of synchronous satellites of the type discussed in this report. ... the electronic sub-systems used on the communications satellite should present no real technical difficulty.

A few lines later, it was suggested that:³

One possible alternative to an all-Canadian satellite would involve the purchase of the airframe and associate apparatus from a United States or other foreign supplier proficient in this area.

Implicitly, there was another advantage in that the above option involved less risk of the entrenchment of a manufacturing rival (details in the next chapter).

¹Canada, Parliament, Debates (Commons), 2nd session, 28th parliament (1969-70): 328. RCA Victor Ltd. also received grant(s) under the provisions in the P.A.I.T. Program. By March of 1970, the export sales of earth stations was \$21,000,000 and the international market was estimated at \$450,000,000.

²Canada, Department of Transport, Evaluation, p. 34.

³Ibid.

2. Summary

The serious doubts about the power and will of the federal Cabinet to exercise a *de facto* policy-making control over its crown enterprise have been strengthened by the evidence presented in this chapter. The initial priority was set by this managerial body when it arranged for operational adoption by edict.¹ A time-delay priority was specified by the telephone common carriers when they refused to contract for increased integration until after the TCTS/T Agreement had been approved. The size of the initial procurement is irrelevant to the classification as a *prototype* domestic satellite communication system. As long as the federal government did not allow specialization and/or condoned integration by existing chosen instruments (see Exhibit 5), commercial adoption could be postponed until the second or third generation of key facilities.

The positions of the federal government and common carriers on the central issue of status quo versus productive system planning has been considerably clarified. Since the negotiations for definitive arrangements and system planning prerogatives were essentially confined to these parties, the emphasis would be on *orderly* development within the *existing* framework. The analyses of the systemic goal (profitability and growth) and related expectations confirm that during the system planning for the first generation of key facilities productivity criteria were set aside. Given that integration is the principal prerequisite for a matching of influence

¹Op. cit. See page 122.

and a blending of value(s) and premise(s), then the central hypothesis is valid. The federal government has assumed the burden of the obsolete 6/4 GHz facilities which probably will not be integrated with the second generation of key facilities. The common carriers have prevented specialization and exercise a *de jure* administrative control over the 14/12 GHz facilities. In other words, the reliance upon public operational adoption then covert commercial adoption has allowed for a separation rather than a sharing of responsibilities.

The ideal physical manifestation of blended value(s) and premise(s) would have been an official plan which spanned every phase of innovation for the foreseeable future. If one existed, it has not yet been released to the general public (details in Chapter 9). Did the federal Cabinet create a *cul de sac* when the communications department or central agencies promoted the expansion of the Thin Route system(s)? Will this managerial body be forced to replace multiple-access 6/4 GHz facilities unnecessarily?

CHAPTER 8: TELESAT CANADA - CHOICES

Chapter Eight sets out to complete two tasks. A determination will be made of which party(s) might have had influence or administrative control over a series of system planning choices, i.e. the selection of a prime contractor(s) to design, procure, manufacture, assemble and/or install certain key facilities. A host of premises which may have effected the Telesat decision-making process will also be highlighted. Collectively, they will be labelled either as part of a formal plan based upon an ideal domestic satellite communication system or as incremental adjustments and *ad hoc* responses.

The chapter is divided into the following sections: first generation of key facilities, replacement spacecraft, second generation of key facilities and summary.

1. First Generation of Key Facilities

Two important factors were mentioned in Part I. The provisional Telesat directors held office *during pleasure*. The first communications minister not only resigned from the Cabinet but also withdrew from politics shortly after the prime contract for the Anik Is was awarded. These factors increase the acerbity of the question which this section seeks to answer. Why did these directors and the above official authorize or approve the purchase of three satellites with 12 R.F. channels rather than two units with 6 R.F. channels?

The active stakeholders with a vested interest in the allocation of the initial contract(s) were introduced in the first chapter. These parties can be divided into three main groups: a consortium of RCA Victor Limited; TRW, Inc.; Spar Aerospace Products Ltd., *et al*; another consortium of Northern Electric Company Limited, Hughes Aircraft Company and General Dynamics Corporation; and the central agencies, communications department and crown enterprise.

(a) RCA Victor Limited; TRW, Inc.; Spar Aerospace Products Ltd., *et al*

The contest for the prime satellite contract mentioned near the end of the previous chapter can be traced backwards for at least a decade. Exhibit 10 describes bids which were filed by AT&T in 1959 and 1966 for a global system¹ then a domestic one,² respectively. In either case, the Bell System would have acquired an exclusive right to own, build and operate these key facilities. The second submission is particularly relevant to this case study for two reasons. It involved specialization then integration yet avoided obsolescence and duplication (further details in the next chapter) of successive generations of key facilities.³ It was publicly available about the same time that Niagara Television Limited, Power Corporation of Canada and RCA Victor Limited made their submission

¹ Goulden, Monopoly, p. 111. This bid was submitted to NASA.

² United States, Federal Communications Commission, Docket No. 16495, Appendix B, pp. 11-2.

³ *Op. cit.* See pages 136-7 and 194.

EXHIBIT 14

BELL SYSTEM PROPOSALS IN 1959 AND 1966

Item Satellite Communications System

Territory	Global	Domestic (USA)	
Year of submissions	1959	1966	
Orbit	Polar and Elliptical	Equatorial and Geostationary	
Altitude (miles)	3,000	22,300	
Time span.		1968-80	
Phases		I	II
Number of satellites	50	2	2
Launch dates,		1968, 1972	1975, 1976
Earth stations			
one-way		73	73
two-way	13		26
Frequency bands (up/down, down)	6/4	6/4	30/18, 4
Cost \$'000			
initial	170,000	104,000	
phase II			339,000
Beam(s)	Single	Single	Switched
Capacity			
voice	600		30,000
television			12

SOURCES: J.C. Goulden, Monopoly (New York: Putnam's Sons, 1968), p. 111 and United States, Federal Communications Commission, In the Matter of the Establishment of Domestic Communications Satellite Facilities by Non-Government Entities, Docket No. 16495, Report and Order, Washington, D.C., March 1970, Appendix B, pp. 11-2.

to the Board of Broadcast Governors.

The American reversals became even more important for certain Canadian common carriers after the continental telephone consortium lost its bid to own, build and operate the Mill Village earth station¹ as part of the INTELSAT system. The contest became a lively one after the original submission since:²

When they initially put forward their proposals, this gave an impetus to the whole movement in Canada to hasten the speed of change and to get involved in satellite communications.

RCA Victor Limited of Montreal was catapulted into the forefront of the public debate and private lobbying effort stimulated by the Niagara Television/Power Corporation application. This company's contacts with senior federal officials were primarily³ through the science community and a military-industrial complex of Canadian and American organizations which have been drawn closer and closer together⁴ since the end of the Second World War. As pointed out in the previous chapter, its claim to a unique expertise rested upon the design and manufacture of components for a number

¹Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 37, p. 1875.

²Idem, Proceeding No. 39, p. 2065.

³Idem, Parliament, Debates (Commons), 2nd session, 28th parliament (1969-70): 2861. The president of RCA Victor Limited was also a member of the Defence Research Board.

⁴Litvak, Maule, and Robinson, Dual Loyalty, Appendix B2, pp. 219-25. The defence production sharing program was commenced in 1967.

of scientific or military satellites and the Mill Village earth station.¹ Its claim was augmented by intra-corporate access² to the new space division (RCA Astro-electronics) of the parent company.

This wholly-owned foreign subsidiary initiated a public suasion campaign in the fall of 1967 with a press release on the design criteria for a communications satellite which could be built entirely in Canada. A month later, Spar Aerospace Products Ltd.³ was incorporated through Letters Patent of Canada (see Appendix H). A consortium⁴ was being formed by RCA Ltd.; TRW, Inc.;⁵ Spar Aerospace Products Ltd. and others when the industry department funded a *confidential* study program during the

¹Canada, Parliament, Debates (Commons), 2nd session, 27th parliament (1967-68): 7986. In 1963, RCA Victor Limited received two Mill Village contracts worth \$50,000 and \$4,500,000 under orders-in-council 611,173 and 617,210 respectively.

²Idem, 1st session, 28th parliament (1968-69): 10116. On 24 March 1969, the first communications minister stated in the House of Commons that all of the RCA international expertise in satellite communications resided in Canada.

³Spar Aerospace Products Ltd., "SPAR," Toronto, Ontario, (Mimeographed.)

⁴Canada, Department of Industry, Program Plan, pp. 24, 40.

⁵Idem, Parliament, Debates (Commons), 1st session, 28th parliament (1968-69): 7527. TRW, Inc. built the Intelsat IIIs. This series involved the only attempt to evenly distribute the contracts between American and European manufacturing organizations. It also involved a lump sum payment rather than performance incentive provisions. Several launch failures were encountered and considerable criticism arose, including allegations of poor cost effectiveness. In 1976, Western Union and NASA awarded a \$796,000,000 contract to the company to build 3 satellites for the Tracking & Data Relay Satellite System. Two years later, a lack of effective communications between these parties resulted in a \$100,000,000 design error.

spring of the following year. RCA Ltd.¹ submitted an estimate of forty-two million dollars for two satellites with *off-the-shelf* designs or components wherever possible.² The capacity provided by single, dual³ or multiple carrier operation far exceeded Canadian requirements (see Supplementary Exhibits L8, Q1 and R1). For example,⁴

Number of Carrier(s) per Channel	Capacity
1	1 television
4 - 6	60 voice
2	600 voice
1	1500 voice

Within a month, this company had published a brochure for distribution to the general public. In "A Canadian Satellite: to serve Canada's Domestic Communications Requirements," budgetary allocations were outlined for a space factory which would be built outside Montreal. Once the Telesat Canada Act of 1968-69 had been proclaimed, the provisional directors executed an agreement which fulfilled a commitment by the communications department, central agencies and/or Cabinet. Under the provisions of a sole-source contract, RCA Ltd. would complete the program definition phase.

¹Canada, Parliament, Debates (Commons), 1st session, 28th parliament (1968-69): 682. RCA Ltd. received a total of between \$175,000 and \$274,347 in payments.

²Idem, Department of Industry, Program Plan, p. 17. For example, the Hughes Aircraft Company of Los Angeles or Varian Associates of Palo Alto would design the travelling wave tubes.

³"Double up capacity," Dateline: TeleSat 3 (Spring 1976): 3. Apparently, the relay of two different television programmes over one R.F. channel would display a *slightly reduced* image but would not meet the *high* CBC standards.

⁴Canada, Department of Industry, Spacecraft Design - Electrical, p. 20.

The description¹ of each specification would be vetted by both parties and modified with legal phraseology. In this way, the paragraphs of a draft prime contract(s) for supposedly *made-in-Canada* satellites and related earth stations² would be compiled.

As mentioned previously, the industry department had been warned that every day of delay might result in greater risk of poor reliability, loss of position in the launch schedule and/or reduction in Canadian content.³ Even so, almost an entire year would pass before it became necessary or expedient to effect a complete reversal. In spite of a two hundred thousand dollar payment to extend the validity of the draft contract based upon the RCA report, the crown enterprise selected an unsolicited bid. The prime contractor would be the Hughes Aircraft Company and three *off-the-shelf*⁴ satellites would be procured.⁵

¹ Canada, Telesat Canada, "Spacecraft Program Requirement Specifications," Ottawa, Ontario, 15 September 1969, (Mimeographed,) Attachment D, 7pp.
NOTE: Attachment D was dated 11 August 1969.

² Idem, Annual Report 1969, p. 2. RCA Ltd. received the following payments: program definition phase (\$3,500,000), sustained engineering (\$360,000) and extension of proposal validity (\$190,000).

³ Idem, Department of Industry, Canadian Domestic Satellite Study, sec. 7, pp. 1.1-1, 2.

⁴ Idem, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 33, pp. 1664-5. The Intelsat IVs had a 12 R.F. channel capacity and 1 colour television signal could be carried over each one.

⁵ Idem, Telesat Canada, Annual Report 1970, p. 4. Hughes Aircraft Company provided the Westar units and three satellites built for the American domestic market. These units were sold to Indonesia in spite

These spacecraft resembled the Intelsat IVs which a Bell Canada executive had described as follows:¹

- * Vastly greater satellites are contemplated in the future. There is a so-called INTELSAT 4 satellite presently being designed which would give 12 channels in place of 6.

What organization(s) and/or circumstances could have induced such a dramatic change? Was the apparent switch from one manufacturing consortium to its rival connected with the reversal of the proper sequence² for stock issuance?

(b) Northern Electric Company Limited, Hughes Aircraft Company and General Dynamics Corporation

The Northern Electric Company Limited of Montreal was thrust into the fray by the commission from the transport department to prepare a *confidential* and detailed study at a cost of one hundred and sixty thousand dollars. Its contacts not only overlapped³ those of RCA Victor Limited but also included the extensive ones of the parent company. Bell Canada's contacts spanned the

of the poor compatibility with the country's needs. If the sub-contract work on these units is included, the Canadian content figure becomes about 50 per cent which matches the forecast by the Canadian banking executive who prepared the *secret* PCO study on ownership.

¹ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 37, p. 1904.

² Op. cit. See page 145.

³ J. Sallot, "Treu retained links with NATO: sources," Globe and Mail, 12 June 1978, sec. 1, p. 9. The Northern Electric Co. Ltd. opted out of

provincial governments and had on at least two occasions in the past¹ yielded advice from the innermost circle of the federal government.

The Northern Electric claim to expertise had several aspects. It occupied the dominant position amongst Canadian manufacturers of telecommunications and electronic equipment.² This manufacturing associate had conducted developmental work with an experimental earth station³ and at a cost of several million dollars. Its Belleville plant had recently been assigned the sub-contract work from the Hughes Aircraft Company to manufacture, test and integrate: "... a complete repeater subsystem for Intelsat IV."⁴

During the first month of 1969, this closely-held subsidiary⁵ announced the formation of a consortium with two American aero-space

the defence business about the end of 1973.

¹Fetherstonbaugh, Site, pp. 182-3.

²Canada, Department of Industry, Canadian Domestic Satellite Study, sec. 4, p. 1.3-1.

³Idem, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 37, pp. 1850-1. In December of 1962, the telephone common carriers wrote the transport minister and proposed that they build, own and operate the INTELESAT earth station at Mill Village, N.S. Bell Canada wrote to advise that it was proceeding with satellite experiments to the North then had discussions with the deputy minister of that department. One of the ATS satellites was used to relay signals between Bouchette and Mill Village. The Québec site was chosen for its suitability for military traffic linkages with remote stations at Frobisher, Goose Bay, etc.

⁴Idem, Department of Industry, Canadian Domestic Satellite Study, sec. 7, p. 2.3-1.

⁵Idem, Parliament, Debates (Commons), 4th session, 21st parliament

firms in order to offer: "... a wide range of in-depth capabilities in Canada, coupled with the strongest backing available in the U.S. communications satellite industry."¹ The Northern Electric Co. Ltd., Hughes Aircraft Company and Canadair,² a subsidiary of General Dynamics Corporation, would seek a contract to manufacture equipment for satellite communications. A few months later, the Bell Canada subsidiary also participated in the study program funded by the industry department.³

Its estimate of forty-three and a half million dollars was for three satellites⁴ (see Supplementary Exhibit L7). Except for an enlargement of the disparity between the potential capacity and forecasted requirements, there were two subtle differences between the RCA Ltd. and Northern Electric Company design estimates. The latter emphasized single carrier signal operation which would ensure greater flexibility for data transmissions since that kind of signal: "... affords the user point-to-point as well as point-to-multipoint capability on a per data channel

(1951): 105. A Member of Parliament stated that 10 or so directors of the Northern Electric Co. Ltd. were also the shareholders closely connected with those individuals, families and/or institutions which exercised direct control over the nomination of Bell Canada directors.

¹ Canada, Department of Industry, Canadian Domestic Satellite Study, sec. 4, p. 1.5-1.

² Op. cit. See page 164.

³ Canada, Parliament, Debates (Commons), 1st session, 28th parliament (1968-69): 6802. The Northern Electric Co. Ltd. received a total of \$184,000 in payments.

⁴ Idem, Department of Industry, Canadian Domestic Satellite Study, sec. 12, p. 1-4.

basis."¹ The latter also included about two millions: "... for schedule achievement and quality performance."²

By June, the Bell Canada subsidiary was directly involved in negotiations with communications department officials. The subject of their discussions was the procurement of between three and six *repeater subsystems* for the domestic communication satellite(s).³ By early fall of that year, the Northern Electric Co. Ltd. had opened an aero-space laboratory outside Ottawa and the company had been awarded a directed sub-contract to complete part of the program definition phase. Early in the new year, the Bell Canada subsidiary submitted the final report on transponder technology⁴ to RCA Ltd.

During the summer of 1970, the Hughes Aircraft Company submitted an unsolicited bid to Telesat Canada which terminated a year of negotiations that had yielded little progress. In September, the crown enterprise purchased the trilogy of 12-R:F. channel satellites. These units would

¹Canada, Telesat Canada, "Data Transmission Via Canada's ANIK Domestic Satellite," Ottawa, Ontario, (Brochure.)

²Idem, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 39, p. 2082.

³Idem, Parliament, Debates (Commons), 1st session, 28th parliament (1968-69): 4812.

⁴Idem, Telesat Canada, Telesat Canada Satellite: Project Definition Phase - Final Report (Montreal: RCA Ltd., 1970), Vol. B: Transponder Technical, Prepared under a directed sub-contract (Ottawa: Northern Electric Co. Ltd., 1970.)

cost about thirty-one million dollars¹ but would not be equipped with redundant travelling wave tubes² (see Supplementary Exhibit P3). Two months later, this American aero-space manufacturer filed an incomplete³ application with the Federal Communications Commission for a domestic communications satellite system with flight spacecraft that would have twelve R.F. channels and be positioned at 97°, 100° and 103° west longitude (see Supplementary Exhibit L2). The similarities between the three designs and the proximity of the FCC application provide few clues as to why the federal Cabinet changed tack.

(c) Central agencies, communications department and crown enterprise

Based upon ministerial comments referred to on the next page and the description of the *pilot phase* contained in Supplementary Exhibit R1, it would seem reasonable to assume two things. The first official cost/benefit analysis of a domestic satellite communications system was conducted as part of the PCO study on the upper atmosphere and space programs. In an unpublished section, the Science Secretariat recorded two *secret* conclusions. Most of a 3-R.F. channel satellite - except

¹ Canada, Telesat Canada, Annual Report 1970, p. 4.

NOTE: Duplicate travelling wave tubes would have permitted utilization of *state of the art* techniques such as frequency re-use.

² Op. cit. See page 201. As of 1 January 1970, the Intelsat IV travelling wave tube design manufactured by the Hughes Aircraft Company had logged the following hours of failure-free operation: 2,250,000 in total and 500,000 in space.

³ United States, Federal Communications Commission, Federal Register.

probably for the travelling wave tubes¹ - could be manufactured with adequate reliability in Canada. A specialized domestic satellite communications system was economically feasible for television distribution.

In July of 1967, the PCO Task Force on Satellites completed another secret report² which was then forwarded to the federal Cabinet. Based upon the evidence presented so far, it would seem reasonable to assume that the above study encapsulated the following items. The capacity of the satellite(s) was expanded from three to six - perhaps more³ - R.F. channels, depending upon the number of parties and the amount of indirect subsidization which they agreed to pay. The design configuration was converted from an emphasis on television distribution and expansion of both CBC networks⁴ to capabilities for southern trunk line field trials and northern multiple-access experiments.⁵

Early in February of 1968, the Northern Electric Co. Ltd. announced

Washington, D.C., 2 March 1971, Vol. 36, No. 41, (Mimeographed,) p. 3938. The two earth stations would have been at Hughes plants in Califon, N.J. and San Juan Capistrano, California. The Western Union Corporation application was filed on 30 July 1970 and requested the reservation of parking slots at 95°, 102° and 116° west longitude.

¹Canada, Department of Industry, Program Plan, p. 17.

²Chapman, "Development of Policy for Domestic Satellite Communications," p. 2.

³International Frequency Registration Board, "Information Concerning a Satellite Communications System Project," Circular No. 817, Geneva, Switzerland, 6 August 1968, (Mimeographed.)

⁴Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 35, p. 1752.

⁵Op. cit. See page 196.

that it would contest the outright award¹ of the prime satellite contract to RCA Victor Limited. A few days later, the transport minister commented on this subject in the House of Commons. He indicated that the federal government intended to reserve a position in space. Then, he added that responsibility for the operational adoption of satellite communications had been transferred to the Prime Minister and the Privy Council Office.² By the end of the next month, the white paper had been released but it glossed over the essential issues.³ In contrast to the ideal purpose,⁴ this document forestalled more than it contributed towards meaningful public participation in the forthcoming debate on the social or political implications of satellite communications.

As mentioned previously, a Satellite Project Office consisting of six different groups⁵ was set up in March of 1969. This temporary organization reported to the industry department for about four weeks then to the communications department for about four months. During the

¹ Niagara Television Limited and Power Corporation of Canada, "Proposal for a Canadian TV Network and a Domestic Space Satellite Distribution System," part II, sec. 7, p. B42.

² Canada, Parliament, Debates (Commons), 2nd session, 27th parliament (1967-68): 6413.

³ Op. cit. See page 35.

⁴ A.D. Doerr, "The Role of White Papers," in The Structures of Policy-Making in Canada, eds. G.B. Doern and P. Aucoin (Toronto: Macmillan, 1971), pp. 180, 199-200.

⁵ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 29, p. 1483.

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first Commons standing committee proceeding on Bill C-184, the first communications minister testified that:¹

The common carriers have taken the position that it is too expensive....
Quite frankly, we just do not know what will happen.

During a sitting of the House of the Commons on the next day, the Minister gave the response below to a written query:²

Mr. Schreyer: 1. Has the Post Office Department undertaken a cost-benefit study related to the proposed satellite communication system and, if so, what was the cost-benefit ratio and what specific alternatives were evaluated?

Mr. Kierans: A number of cost benefit studies of various configurations of domestic communications satellite systems were undertaken prior to the publication of the White Paper on Domestic Satellite Communications System for Canada. Alternatives evaluated included various satellite configurations and terrestrial alternatives. The results were most favourable for a 3 to 6 transponder satellite.

Twenty-seven days later, an assistant deputy minister from the communications department advised the Commons standing committee that:³

For the space segment itself, the satellite, we have an estimate of costs of \$41,750,000 up to \$46,000,000. In addition \$4.25 million is for contingencies....

And it includes insurance against launch failures and all sorts of things.

Based upon the evidence presented so far, it would seem reasonable to

¹ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 29, p. 1476.

² Idem, Parliament, Debates (Commons), 1st session, 28th parliament (1968-69): 7849. Question No. 1881.

³ Idem, House of Commons, Standing Committee on Broadcasting, Films

assume that one of the unspecified contingencies was a switch to a different supplier (see Supplementary Exhibit L7). As far as the general public were concerned, this matter remained in *limbo* for a whole year. Then, the first communications minister found it expedient to side-step another question in the House of Commons. On this occasion, it was about reports that there had been a substantial increase in the cost of the proposed satellite(s).¹

What were the three federal entities under review doing during this time? Twelve days before the Telesat Canada Act of 1968-69 was proclaimed,² the central agencies and/or the communications department compiled the requirements for the Program Definition Phase. A special directive requested:³

A discussion of the factors controlling the minimum time interval between the decision to launch Flight Spacecraft 2 as either a replacement for, or a complement to, Flight Spacecraft 1 and the establishment of an operational satellite communications capability with it.

On the day that the first batch of Telesat by-laws was passed by the provisional directors, the spacecraft program requirement specifications (see Supplementary Exhibit L7) were forwarded to the prime contractor for the Program Definition Phase. RCA Ltd. re-distributed copies to the bevy

and Assistance to the Arts, Proceeding No. 39, p. 2067.

¹Canada, Parliament, Debates (Commons), 2nd session, 28th parliament (1969-70): 7546.

²Idem, Government of Canada, Canada Gazette, No. 34, Vol. CIII (Ottawa: Queen's Printer, 1969), p. 2040.

³Idem, Telesat Canada, "Spacecraft Program Requirement Specification," Attachment D, p. D-7.

of organizations seeking sub-contract work, perhaps even the prime contract itself. These specifications required that the *co-located* spacecraft(s) must be able: "... to provide single carrier transmission of TV signals and/or multiple carrier transmission of voice and digital signals in any of the six channels."¹

In addition, they contained a subtle yet important shift in the approach to an engineering tenet. In a design study submitted to the industry department, the principle of redundancy was described as the use of duplicate sub-systems:²

Wherever possible so that no single component failure will result in the loss of the mission.
(The mission is here defined to mean all subsystems operating within specification for 5 years).

In the Telesat specifications under review, it was now defined as:³

Some form of redundancy or alternative operational mode shall be incorporated in the system where practicable to reduce the impact of a part or unit failure which can cause loss of 50% or more of the RF channels (67% or more in the case of eclipse operation).

By implication, about one-half of the capacity on the space segment of the domestic satellite communication system would be surplus during the entire five-year-period.

¹Canada, Telesat Canada, "Spacecraft Program Requirement Specification," Attachment B, p. B-1.

²Idem, Department of Industry, Canadian Domestic Satellite Study, sec. 1, p. 4.4-1.

³Idem, Telesat Canada, "Spacecraft Program Requirement Specification," Attachment B, p. B-4.

Rightly or wrongly, the most popular beliefs about the operational adoption concerns the impolite - perhaps even improper - behaviour of RCA Ltd. and Corp. executive(s). The one which is most pertinent to this case study involved the first communications minister. Allegedly, the RCA executive(s) told the Minister that his statements in the House of Commons and to the press had left that elected official without any options. He must accept their bid for a supposedly *made-in-Canada* satellite without provisions for a delivery deadline and/or a maximum cost figure in the prime contract. Based upon the evidence presented so far, it would seem more likely that the pivotal problem was more closely related to an imbalance of lobbying clout¹ and the similarity of the designs.

Given that senior officials and executives in the Cabinet, central agencies, communications department and crown enterprise were unable to hammer out a consensus on a winner of the prime contract, a compromise idea moved to the forefront. Specifically, an assistant deputy minister at the communications department had proposed the formation of a manufacturing consortiums' consortium. Costs escalated rapidly for the space segment alone and soon went beyond the five per cent margin for contingencies. The final quotation apparently approximated the original estimate of seventy-five million dollars for both kinds of key facilities,

¹ Canada, Parliament, Debates (Commons), 1st session, 28th parliament (1968-69): 3306. One day after the submission of the study reports to the industry department, press conference(s) were held without ministerial knowledge or approval. Three days later, the House of Commons was advised that Northern Electric Co. Ltd. had approached the department on this subject. The industry minister claimed that both companies had received instructions on what information could be released to the general public.

i.e. satellite(s) and earth stations.¹ Equally important, the difficulties of co-ordination became almost insurmountable. These potential problems raised the spectre of a fiasco similar to the Intelsat III failures or a complete collapse of project management capabilities.²

By design or coincidence, the unsolicited bid from the Hughes Aircraft Company provided an opportunity to discreetly eliminate the *cul de sac* in which these parties found themselves entrapped. Five other changes formed an integral part of this compromise. Full sun transit (see Glossary) and eclipse protection³ would be provided (see Supplementary Exhibit P2). The delivery schedule was considerably shortened and the potential reliability increased.⁴ The flight spacecraft were given a capacity which was two times greater than the latest estimate of the domestic service agreement market during the orbital lifetime. The option to reduce the number of independent R.F. channels in order to use a less costly booster⁵ and increase profitability was foregone. Performance

¹ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 29, p. 1474.

² Idem, Télésat Canada, "Spacecraft Program Requirement Specification," Attachment D, p. D-6.

³ Idem, Department of Industry, Canadian Domestic Satellite Study, sec. 3, p. 2.2-1.

⁴ Ibid, sec. 7, p. 1.1-1.

⁵ Op. cit. See pages 194-5, 198 and 206.

reliability was also lowered¹ by a further modification of the redundancy principle. Equally important, this change eliminated the option to test or adopt the frequency re-use technique. The flight spacecraft would be placed into adjacent positions rather than *co-locations* and thereby both forge and occupy a Canadian space window. More importantly, this compromise was probably only part of an obtuse policy revision (further details in the next section).

The variances between the systems or networks planned and actually installed have already been described on several occasions (see Supplementary Exhibits L6 and Q1-3). Two related mysteries remain. Why was such a potentially large system procured? Why was the Thin Route system converted from an experimental to operational status and expanded - sometimes temporarily - into northern Ontario?²

2. Replacement Spacecraft

Section Two seeks to answer one question. Why did the federal Cabinet condone - perhaps even promote - the procurement of a dual band satellite? The events leading up to the construction of the only batch consisting of a single unit can be traced backwards to the first launch of an artificial satellite. In order to concisely compile the diverse

¹Canada, Telesat Canada, Telesat Canada Satellite, sec. 2, p. 3.5-1.

²Toronto Star, "New Bell Network Northern Operation," quoted in Dateline: TeleSat 1 (December 1974): 8.

happenings since then, the section is divided into the following segments: r&d policy adjustment and re-classification of spacecraft, advanced and unforecasted launches then planned replacement.

(a) R&D policy adjustment and re-classification of spacecraft

Three months after the U.S. Defense Department began test firings of the Atlas inter-continental ballistic missile (ICBM), the Soviet government launched the Sputnik 1 into a shallow orbit.¹ Four weeks later, the Vanguard TV3 collapsed onto the launch pad and exploded only two seconds after ignition. Almost two months passed before Explorer 1 was exploded into orbit on top of a Jupiter C rocket with solid-fuel boosters strapped to the sides.²

That summer, the greatest wave of fear³ since Pearl Harbour swept through the corridors of the U.S. government (see Supplementary Exhibit L11). Legislation was quickly passed by Congress which authorized the establishment of the National Aeronautics and Space Administration (NASA). It was given⁴

¹Encyclopedia Britannica, 1972 ed., s.v. "Space Exploration."

²E. Bergaust and W. Bellar, Satellite! (Garden City, N.Y.: Hanover House, 1956), pp. 42-4.

³Kildow, INTELSAT, p. 20. Fear was induced by the throw-weight implications for ICBMs since the mass of each successive Soviet satellite rapidly but only temporarily out-distanced the American ones.

⁴Goulden, Monopoly, pp. 138-9. The combined expenditures of NASA and the U.S. Defense Department on communications satellites alone was about

almost *carte blanche* to mobilize American resources in order:¹

To demonstrate the peaceful purposes of space research and development by the United States, to provide opportunities for the participation of scientists and agencies of other countries in the task of increasing man's understanding and use of his spatial environment, and to support operating requirements for the launching and observation of space vehicles and craft.

In 1958, a meeting was held under the auspices of Cornell University² to discuss the request from the National Academy of Sciences for proposals on space projects. Somehow between that time and the official announcement by the federal government, the original idea to conduct experiments on an American top-side sounder was revised.³ It was magnified into a commitment⁴ by the Defence Research Board (DRB) to build an entire satellite. The Central Radio Propagation Laboratory of the National Bureau of Standards in Boulder, Colorado would continue with the preparations for the fixed-frequency S-27. The Defence Research Telecommunications Establishment (DRTE) at Shirley Bay, Ontario would begin to design the second-generation, swept-frequency S-48.

\$571,000,000 in the 1950s and early 1960s. From 1960 through 1963, the NASA budget was \$6,800,000,000 which included \$312,000,000 for communications satellites.

¹United States, National Aeronautics and Space Administration, Office of International Affairs, "International Programs," Washington, D.C., (Brochure,) p. ii.

²J.E. Jackson and E.S. Warren, "Objectives, History and Achievements of the Topside Sounder and ISIS Program," Special Issue, Proceedings of the IEEE (June 1969): 861.

³Canada, Parliament, Parliamentary Debates (Commons), 2nd session, 24th parliament (1959): 5504.

⁴Idem, 2nd session, 27th parliament (1968-69): 2341. This single

Late in September of the following year, the S-48 was completed¹ ahead of the S-27, launched into orbit by NASA then renamed: the Alouette 1. The early arrival produced such a volume and range of data that the American and British participants were literally overwhelmed. The long-term result was two-fold. This specialized area of basic research was allocated by the American space agency to the DRTE in that three more spacecraft would be launched under the provisions of the International Satellites for Ionospheric Studies (ISIS) Program.² A related agreement was also executed whereby the transport department would construct an earth station at Mill Village³ in Nova Scotia in order to participate with NASA in the Applications Technology Satellite (ATS) Program.⁴

In the spring of 1968, the Privy Council Office was joined by the communications department in a review of spacecraft requirements and the preparation of two sets of design specifications. One involved the

project would dominate - even strain - the budgetary resources of the DRB. The Department of National Defence objected to the project on the grounds that it did not have sufficient military applications to warrant the amount of expenditures.

¹Op. cit. See page 32: Without overhead charges, this spacecraft and the Alouette 2 cost \$3,100,000 and \$3,932,000 respectively.

²Canada, Department of Communications, "Canada in Space," (Brochure.)

³Idem, Parliament, Debates (Commons), 2nd session, 27th parliament (1967-68): 7987. Budgetary allocations were increased from \$5,500,000 to \$12,000,000 through Treasury Board Minutes. By fiscal 1968/69, construction costs had risen to \$11,785,240.

⁴United States, National Aeronautics and Space Administration, Lewis Research Center, "Communications Technology Satellite," Cleveland, Ohio, March 1975, (Brochure.)

re-classification of the Anik Is from experimental/prototype spacecraft(s) to field trial/operational satellites. The other involved the conversion of a redundant scientific spacecraft and surplus booster from the ISIS Program into a mission-oriented project with an emphasis on: "... applied rather than pure research."¹ The CTS-1 would be an applications technology satellite and would represent an incremental extension of the ISIS and ATS Programs (see Supplementary Exhibit L12). The twin problems which bedevilled the federal entities mentioned on the previous page were how to define a niche for the CTS-1 which went beyond the latest ATS unit yet did not blatantly conflict with the one for the Anik Is.

By the fall of 1970, departmental officials had completed the conceptual development phase. The Anik Is would provide an opportunity for the common carriers to conduct field trials of trunk line interconnection and multiple-access. The CTS-1 would provide an opportunity for federal scientists and technicians to carry out:²

Experiments in telecommunications, including broadcasting,... to help develop in Canadian industry the competence to design and build

March 1975, (Brochure,) p. 3. On 18 September 1969, the U.S. and Indian governments entered into an agreement for experimental direct-to-home broadcasts using the ATS-6.

¹Canada, Department of Communications, Annual Report 1970-1971 (Ottawa: Information Canada, 1971), p. 1. Several interviewees argued that the durability of the Alouette 1 rendered the Alouette 2, ISIS A and ISIS B superfluous.

²Ibid, p. 2.

subsystems for future generations of satellites....
to find answers to the problems of the development
of high-powered satellite communications systems.

As documented in the previous section, the announcement of the contract with the Hughes Aircraft Company to build the Anik-Is was officially made at the end of September in 1970. The joint announcement of the CTS Project was withheld until the start of the next fiscal year.¹ A year later, the mechanical sub-systems and ground support equipment contract was awarded to Spar Aerospace Products Ltd.² Two months after that announcement, RCA Ltd. was awarded the contract to design and build the electronic sub-systems for the developmental spacecraft.

During the summer, the communications department invited proposals for experiments.³ In the fall, a routine project review by a group from the Communications and Lewis Research Centers prompted the deletion of two projects with commercial potential. The design of an ion engine and a liquid metal slip ring⁴ were discontinued on the grounds that weight

¹J. Almond, C.A. Franklin, and E.S. Warren, "A Perspective on the Canadian Satellite Program," Canadian Electrical Engineering Journal 1 (January 1976): 57.

²Spar Aerospace Products Ltd., Annual Report 1972 (Toronto: SPAR, 1973), p. 2. The design phase was worth \$5,035,505.

³Canada, Department of National Defence, Directorate of Communications, Engineering and Maintenance, "Brief Guide to Satellite Systems," p. 12. This report states that the only use which the DND might accrue from the CTS-1 was the results from the automatic demand assignment experiments.

⁴Idem, Department of Communications, Communications Research Center, Annual Report 1972-1973, p. 16. One interviewee stated that these components were the most important experiments since successful development probably would have led to their adoption on the next series of Intelsat satellites.

restrictions had been exceeded. In one annual report, the CTS-1 was billed as: "... entirely experimental, may be the forerunner of a new generation of communications satellites which Canada will require in the 1980s."¹ After the TCTS/T Agreement had received cabinet approval, the description was modified in that: "... CTS could be the beginning of a new era of communications in Canada.... Hermes could be the forerunner of the direct space-to-home broadcasting satellite."² The keynote items in these descriptions are the use of the words *may* and *could*. Did the above approval entail a rejection of the feasibility and/or desirability of satcasting?

In the first month of 1976, the CTS-1 was launched by NASA. The developmental spacecraft was then transferred to a geostationary orbit and renamed: the Hermes. During the next two years, three special features were successfully tested or demonstrated: a two hundred watt travelling wave tube with increased efficiency³ manufactured by Litton Industries, extension of huge solar arrays and broadband beam performance in the 14/12 GHz frequency band. It was also shown that higher power was an alternate technique for the reduction in size of the earth station antenna. Another field trial of the three-axis stabilization system⁴ was conducted.

¹Canada, Department of Communications, Annual Report 1973/74, p. 8.

²Idem, Annual Report 1975/76, p. 6.

³J.E. Lott, "Space industries: Within a decade, we may make all-Canadian communications satellites," Financial Post, 10 June 1978, special section, p. 41. One of the potential uses of a space factory(s) is to assemble travelling wave tubes for the transmission of high-power UHF signals.

⁴Fairchild Space and Electronics Company, "ATS-6: Mission -- Design --

The original and *confidential* estimates of the cost of this project apparently increased over a number of months from thirteen to sixty million dollars. The range can be accounted for by three changes which produced quantum leaps. Accounting procedures were switched to a full-cost basis which included an allocation of overheads. The project objectives were significantly revised. Twenty million dollars for r&d on satellite communications was transferred on paper from the Telesat estimates.¹

In spite of the claim that: "... the construction of the satellite was completed within budget ...,"² the actual cost is a matter of considerable dispute. The figures below start with the official one³ and end with the largest estimate encountered during the research for this case study:

\$
60,000,000
100,000,000
112,000,000
121,000,000
150,000,000

The range can be accounted for by differences of opinion about the proper formula for the allocation of overheads.

Orbital Performance," Revision 1, Germantown, Maryland, October 1975, (Brochure.)

¹Op. cit. See page 188.

²Canada, Department of Communications, Annual Report 1975/76, p. 11.

³Idem, Information Services Branch, "Hermes, The Canadian Technology Satellite," Ottawa, Ontario, January 1976, (News Release,) p. 1.
NOTE: To date, the Auditor General of Canada has been unable or unwilling to conduct an audit of the CTS Project even though this office recently issued serious criticisms of financial management practices and procedures in the communications department which led to internal studies and a reorganization.

Late in 1978, an impromptu committee was appointed by the fourth communications minister (details in the next chapter). In one of the submissions released to the general public, the Canadian Cable Television Association predicted that:¹

It is unlikely except in certain remote areas of northern Canada and similarly isolated communities, that Direct Broadcasting Satellite (DBS) receive equipment (Canadian, American or other) will be owned individually by householders.

A number of questions are raised by the contents of the above quotation and the material presented so far. Was there inadequate project management and budgetary control? Did the CTS-1 cause distortions similar to the Alouette 1 ones? Was the scope and effectiveness of the primary duties for policy development sacrificed - by design or coincidence - in favour of a special - perhaps even superfluous - aspect of an obtuse responsibility² for r&d on satellite communications? Could the bulk of the socio-cultural experiments have been conducted on the ATS-6 and/or the Anik Is?

(b) Advanced and unforecasted launches

Back in June of 1974 and less than two years after the launch³ of the

¹Canadian Cable Television Association, "Cable: Canada's choice for the 80's," Ottawa, Ontario, 6 January 1979, (Printed,) p. 18.

²Op. cit. See page 81.

³Ibid. See pages 6-36, 37, 38. Apparently, the contract with NASA specified a total cost (recurring and non-recurring ones) of \$14,500 for flight spacecraft #1 and #2. If provision was made for the launch of the second and third flight spacecraft after 30 September 1973, the terms and conditions were subject to review.

Anik I-F-1, the Telesat board suddenly announced that the Anik I-F-3 would be removed from the storage site on the eastern seaboard of the USA and prepared for launching.¹ A review of Supplementary Exhibits L8 and L13 heightens rather than reduces the mystery which surrounded the passage of the above motion.² On the one hand, the Telesat management sold more R.F. channels for a few days than it was possible to provide. On the other hand, the new capacity was only rented on a full time basis by the RCA Corporation et al for a couple of months.

A year later, the annual report was released by Telesat Canada to the general public as usual. It contains the following statement:³

The performance of our two operational satellites... continued to be satisfactory. All systems in each satellite were fully functional and no significant component failures have been encountered. The effects of some anomalous behaviour encountered in the spacecraft batteries, and the minor attenuation notch which appears seasonally in certain Anik II RF channels, have not affected normal service to our customers.

By design, due process or chance,⁴ there wasn't a notation⁵ about a much

¹Canada, Telesat Canada, Annual Report 1974, p. 1.

²Idem, "Telesat Canada: A Technical Description of The Canadian Domestic Satellite Communications System," Ottawa, Ontario, November 1974, (Brochure,) p. 21. The Delta 2914 offered 250 or more pounds of payload delivered to synchronous orbit. Only a small portion of this weight could be used to provide greater station-keeping capability.

³Idem, Annual Report 1974, p. 17. The Anik II in the above quotation corresponds to the Anik I-F-2 in this case study.

⁴Idem, "Anik History," Ottawa, Ontario, 11 August 1978, (Mimeographed.)

⁵Idem, "Spacecraft Program Requirement Specifications," Attachment B,

more serious problem.

As forecasted, there had been a gradual deterioration in certain travelling wave tubes manufactured by the Hughes Aircraft Company. Unexpectedly, there was an aberration in some of the receiver units¹ manufactured by the Northern Electric Co. Ltd. Apparently, the phenomenon was first observed during the spring solstice² of 1974. Before the end of the fall solstice, performance was low enough that a procedural change was necessary. At first, it simply required a periodic switch between the duplicate receivers aboard the Anik I-F-1. More importantly, it cost precious minutes of downtime which could have negated the Telesat record³ and it rendered the entire batch of Anik Is suspect.

In 1975, the data overvoice and undervoice technique for signal exchange was introduced by Northern Electric Co. Ltd. If the Allan Park - Lake Cowichan circuits were modified with this innovation, it would have boosted the number of voice circuits from 960 to 1200 at a marginal increase in cost.⁴ Even though the divergence between potential capacity and actual

p. B-I-30. The contractor and crown enterprise were required to not only prepare and maintain a *Critical Items List* but also to *utilize Government Agencies and other contractors to reduce item criticality.*

¹Canada, Telesat Canada, "Telesat Canada Satellite," sec. 2, p. 5.1-1.

²Idem, Department of Transport, Requirements, part 1, pp. 12-3. Eclipses occur once per day near local midnight for up to 69 minutes on or about the twenty-second of March and September. It was expected that there would be relatively light traffic loads *for most of the country* at that time.

³Op. cit. See page 213.

⁴Canada, Telesat Canada, "Low Capacity Voice," Ottawa, Ontario,

usage of the domestic satellite communication system had probably undergone another significant increase, Supplementary Exhibit L13 indicates that the pace of spacecraft procurement was not slackened.

Back in fiscal 1972/73, RCA Ltd. had been awarded a contract by the communications department to examine a UHF satellite model with dual frequency bands.¹ Two years later, the parent corporation submitted an unsolicited bid for a similar spacecraft but with different frequency bands and purpose(s). At the conclusion of the formal bid solicitation and review process, the Hughes proposal for an up-dated Anik I was officially rejected in favour of the RCA one which contained twenty-nine per cent Canadian content² (see Supplementary Exhibit L7). The same type of booster would have been used to launch either spacecraft but reportedly there was a "... difference in price of something like two-to-one ..." ³ between the two bids.

RCA Corporation received the prime satellite contract worth nineteen million dollars⁴ and another one to: "... supply satellite ground control

(Brochure.) Frequency division and pre-assigned frequencies could also be replaced by demand assignment and voice activation techniques in order to *increase system flexibility and capacity.*

¹ Canada, Department of Communications, Annual Report 1972-1973 (Ottawa: Information Canada, 1973), p. 12. The frequency bands were at 300 MHz and 2.56 GHz, respectively. Each R.F. channel could provide 1 voice circuit and could be received aboard aircraft or ships.

² Lott, "Within a decade, we may make all-Canadian communications satellites," p. 41.

³ G.D. Hutchison, "Squabble in sight over a Telesat purchase," Financial Post, 12 July 1975, sec. 1, p. 2.

⁴ Canada, Telesat Canada, Annual Report 1975, p. 1.

equipment."¹ RCA Astro-electronics awarded a sub-contract for five and one-half millions to RCA Ltd. The twelve, single-beam R.F. channels in the 6/4 GHz frequency band would have ten-watt travelling wave tubes in their circuitry instead of the five-watt ones aboard the Anik Is. There would also be up to six R.F. channels and four spot beams in the 14/12 GHz frequency band. In this circuitry, the travelling wave tubes would have an output of twenty watts and would be manufactured by AEG Telefunken.²

Reportedly, one position advocated by the crown enterprise was that there was: "... little advantage in expanding its system to include the higher frequencies."³ Collateral support for the contention that Telesat Canada advocated this position can be found in a speech given by the president who commented that: "... Southern Canada is already extremely well served by a highly developed and efficient system of terrestrial telecommunications."⁴ Apparently, one argument presented by the communications department in a memorandum to cabinet was that: "... the four special channels will be used to continue Technology Satellite experiments, without the need to launch a second and more expensive CTS satellite."⁵ Any doubts

¹"New satellite for 1978," Dateline: TeleSat 3 (Spring 1976): 4.

²"Ahead of its Time!" Dateline: TeleSat 3 (Summer 1976): 2.

³Hutchison, "Squabble in sight," p. 2. Two technical problems with the 14/12 GHz frequency band are rain attenuation particularly in Ontario and loss of signal strength in northern regions.

⁴Golden, "Anik - Experience With a Domestic Communications Satellite Servinf the Public," p. 7.

⁵J. Carruthers, "Channel leasing for satellite seen as subsidy," Globe and Mail, 2 April 1976, sec. 2, p. B2.

about an apparent divergence of opinion which are raised by the quotations on the previous page are deepened by a comment of the first communications minister.

One of his last official statements was made two days after the formal announcement of the CTS-1 Project to the general public and only a week before his resignation. The Minister reassured the House of Commons that the federal government had not concluded that the next Anik(s) would not be built by Canadian industry. He then qualified any commitment as follows:¹

No one in Canada has any doubts at all about the technological capacity of the Canadian industry, especially in the field of satellites. The problem would then become one of the economic and marketing risks of constructing whole satellite systems, and these are economic decisions that can only be taken at the particular time and in the particular circumstances.

The validity of his response seems to dwindle even farther when compared with the testimony² given before the Commons standing committee during the review of Bill C-184. Except for military hardware markets, the couple of hundred million dollars expended on the Hermes and Anik IA-F-1 should have thrust Canadian aero-space and telecommunications equipment manufacturers to a forefront of world-wide commercial developments in communications satellites.

¹Canada, Parliament, Debates (Commons), 3rd session, 28th parliament (1970-72): 5159.

NOTE: The first communications minister may have been afflicted with an onerous problem. He may have been assigned a deputy minister who belongs to the *inner circle* while he remained the *outsider* who was held accountable for certain ministerial responsibilities over which he had little influence.

²Op. cit. See pages 235-6.

For a considerable period, only the 14/12 GHz R.F. channels aboard the Anik IA-F-1 had been rented or assigned to a particular leasee. Reportedly, the communications department agreed to re-allocate or transfer twenty-eight million dollars for their inclusion in the design and usage.¹ An official announcement showed that the above estimate was either erroneous or the amount had increased by six million dollars.² The latest figure is that the charges should be:³

An estimated ... \$36,860,000 over a two year term, commencing in 1979. The Agreement provides for payments prior to the commencement of services of \$9,000,000 on April 1, 1977 and \$18,860,000 on April 1, 1978 followed by \$4,032,000 payable in monthly installments over the term of the Agreement for a total of \$31,892,200.

In the wake of special parliamentary committee hearings on the telecasting of proceedings in the House of Commons, federal largesse was expanded to include the national distribution of these signals to Canadian CATV systems using a new 6/4 GHz R.F. channel.⁴ Was this allocation expedient in light of the imminent expiry of the TCTS/Participating Carrier

¹Canadian Press, "Cable urged for Commons TV," Citizen, Ottawa, 8 June 1978, sec. 1, p. 10.

²Canada, Department of Communications, Information Services Branch, "DOC approves 14 pilot projects for Anik B and another 14 experiments for Hermes," Ottawa, Ontario, 19 June 1978, (News Release,) p. 1. The Anik B corresponds to the Anik IA-F-1 in this case study.

³Idem, Telesat Canada, Annual Report 1977, Note 5, p. 24.

⁴B. Keddy, "Cable companies caught off guard: CBC aims to put Commons on satellite," Globe and Mail, 19 January 1979, sec. 1, p. 5.

service agreement and others (see Exhibit 8)? Was this largesse unduly influenced by the pending general election?¹ Excessive amounts of supervision have apparently been required during the manufacture, tests and assembly of sub-systems for this dual-band spacecraft. The launch date was set back from June until November then December of 1978.² On the fifteenth of that month, the Anik 1A-F-1 was launched into orbit by a Thor-Delta booster.³ Which party(s) bore the cost increases generated by the failure to meet the original delivery schedule? Why were there so many official and unofficial observers at the launch?⁴

The information presented so far raises a much more serious question. Have the bid solicitation and contract award aspects of the Telesat decision-making process always been a façade to hide policy adjustment(s) based upon *in camera* negotiations and/or dubious intervention(s) on behalf of the federal Cabinet?

(c) Planned replacement

Aboard the Anik 1-F-1, receiver performance had deteriorated to the

¹J. Hay, "Trudeau, Clark off and sparring," Citizen, Ottawa, 28 March 1979, sec. 1, p. 1. The House of Commons was advised by the Deputy Prime Minister at 8:59 p.m. on 26 March 1979 of the general election on 22 May 1979.

²K. Maser, "Latest satellite set for Dec. 14 liftoff," Citizen, Ottawa, 28 October 1978, sec. 5, p. 75.

³Idem, "Lift-off! Anik launch at Cape Canaveral has special significance here," Citizen, Ottawa, 16 December 1978, sec. 1, p. 3.

⁴Canadian Press, "Tory questions number viewing Anik launch," Globe and Mail, 15 December 1978, sec. 1, p. 8. The 125-person guest list apparently included 25 Telesat directors or officers, fourth communications

point where an official failure of that component was recognized near the end of August in 1977. Once the Anik I-F-3 was ready, it was pressed into regular service on the pretext that the latest equipment should be used.¹ In effect, the Anik I-F-1 was discreetly mothballed.² Two years later, another unexpected problem rendered the last of the Anik Is doubly suspect.

A keynote specification at the start of the preparation of the first prime satellite contract was that:³

The communication subsystem shall be designed to withstand without subsequent degradation of performance or lifetime, prolonged operation with single carrier flux illuminations up to and including a value of -60dBW/m.

The time lapse for the performance of the first travelling wave tube aboard each Anik I to deteriorate below the cut-off specification(s) for a designated service⁴ had become foreshortened as follows:

Unit	Months
F-1	46
F-2	40
F-3	25

Near the end of January in 1978, the *notch* effect reduced the performance

minister, 2 deputy ministers, 2 assistant deputy ministers and 2 Liberal MPs whose expenses were paid for - in whole or part - by the federal government.

¹Canada, Telesat Canada, Annual Report 1975, p. 2.

²Idem, Annual Report 1976, p. 3.

³Idem, "Spacecraft Program Requirement Specifications," Attachment B, p. B-16.

⁴Idem, "Anik History," Ottawa, Ontario, 11 August 1978, (Mimeographed.)

of the fourth R.F. channel¹ aboard the Anik I-F-2 below the first level of cut-off specifications which reduced the incentive payments.²

Mounting technical problems and previous system planning choices³ had combined to forge a situation where it was not only expedient to place a brand new unit into orbit but also to replace all of the Anik Is. The crown enterprise began to concentrate on the fourth cycle (details about the third one in the next segment) of the bid specification and contract award process. This activity coincided with the time of the official failure of the Northern Electric receiver and the full depreciation of the first two Anik Is. Two spacecraft (Anik IBs) would be procured⁴ and reportedly the prime contract would be awarded within two years.⁵

In the fall of 1978, Spar Aerospace Products Ltd. adopted the name:

These specifications are related to the amount of measured saturating flux density.

¹Op. cit. See page 290.

²Canada, Telesat Canada, Annual Report 1972, Note 2(b), p. 18. The agreement with the Hughes Aircraft Company included two incentive provisions. A monthly payment schedule can range up to \$1,333,333 (US) per satellite. A bonus surcharge comes into effect after 7 years of operation.

³Op. cit. See page 194.

⁴Canada, Telesat Canada, Annual Report 1976, p. 4. The Anik D notation used by the crown enterprise corresponds to the Anik IB one in this case study.

⁵Howard, "Bureaucrats," Citizen, Ottawa, 10 October 1978, sec. 1, p. 2.

Spar Aerospace Ltd.¹ One month later, the fourth communications minister made an announcement to the press which heralded a refurbishment of the David Florida Laboratory at the Communications Research Center.² Reportedly, the Minister justified these expenditures at a time of severe budgetary constraint and foreign exchange crises on the grounds that:³

The Canadian market for communications satellites now is the second largest in the world and large enough to allow Canadian industry to build a base for international sales.

Preliminary indications are that the federal Cabinet will be confronted with an even more costly quotation for the Anik IBs than for the Anik Is. Even though this system planning choice will merely be a re-run of the earlier one, there is one vital difference. In spite of the above ministerial claims, the probability of any reasonable returns this time around is much closer to zero. The procurement of the original and replacement 6/4 GHz satellites raises a couple of questions. How many units were actually needed: "... to test new applications of satellite communications technology and as a reserve back-up?"⁴ Is Spar Aerospace Ltd.

¹"Companies In The News: SPAR," Globe and Mail, 2 September 1978, sec. 2, p. B11.

²R. Stephens, "\$20.4 million 2½-year aid is set for satellite industry," Globe and Mail, 5 October 1978, sec. 2, p. B16.

³"Satellite plan aim for Canada," Globe and Mail, 3 October 1978, sec. 2, p. B1.

⁴Canada, Telesat Canada, Annual Report 1977, p. 4.

being groomed (see Appendix H) to design, manufacture, assemble and test at least one batch of communications satellites in Canada?

3. Second Generation of Key Facilities

Section Three seeks to answer two questions. What delayed or prevented the forecasted *jump* in the growth of data transmission traffic over satellite circuits? Which organization(s) is building and which ones will own and/or operate the *opportunity-laden* second generation of key facilities?

During the World Administrative Conference on Space Telecommunications in 1971, the International Telecommunications Union approved the use of the 14/12 GHz frequency band for domestic radio relay or direct-to-home broadcasting by satellite communications (see Supplementary Exhibit C1). That fiscal year, the national telecommunications branch in the communications department completed:¹

In cooperation with the carriers and provincial governments an assessment of Canada's inter-regional transmission facilities ... the network appears to have an inherent flexibility which enables it to absorb considerable change in the demand forecasts. However, there are signs of over-capitalization ... and declining capital productivity.

The above fiscal year was also the one in which the trilogy of high-capacity Anik Is was procured.

¹Canada, Department of Communications, Annual Report 1971-1972, pp. 13-4.

In 1972, the Trans-Canada Telephone System set up the Computer Communications Group.¹ A year later, Telesat Canada set up the Long Range Planning Committee² (further details in the next chapter). Two other - perhaps closely related - events also happened that year. Satellite circuits using the Anik Is were placed into regular service. The continental telephone consortium and the domestic telegraph one inaugurated their DATAROUTE and INFODAT service, respectively. The monthly rate(s) for: "... a simple teletype circuit operating at 75 words a minute between Montreal and Vancouver ..." ³ simultaneously underwent a ten-fold reduction in price. That fiscal year, a communications department directorate studied policy options for the optimum use of geostationary satellites and high capacity microwave systems with frequency band(s) greater than ten gigahertz.⁴

In 1974, the Canadian Overseas Telecommunication Corporation instead of the Eastern Telegraph and Telephone Company (see Exhibit 5) was co-opted into an agreement with European and American organizations for the promotion of the TAT-7 trans-Atlantic submarine cable.⁵ That year, Telesat Canada was

¹ N.C. Phemister, "Trans-Canada Telephone System," in search 1 (Summer 1974): 42.

² Canada, Telesat Canada, Annual Report 1973, p. 11.

³ J. McDaniel, "Telling It Like it is About Telecommunications," Speech delivered by the general sales manager of CN/CP Telecommunications to an Advertising and Sales Executive Club meeting, Montreal, Québec, 27 September 1978, (Mimeographed,) p. 11.

⁴ Canada, Department of Communications, Annual Report 1973/74, p. 11.

⁵ C. McKercher, "Bid made for new Atlantic cable," Citizen, Ottawa,

co-opted into a consortium of approved telecommunications common carriers which entered into an agreement in principle with the Canadian Arctic Gas Pipeline Company.¹ Within two years, the COTC - renamed Teleglobe Canada - had placed global, direct-dial circuits into operation in conjunction with the TCTS.

As mentioned previously, the International Business Machines Corporation had announced its intention to establish a trans-continental data network.² By the end of December in 1975, negotiations between the Federal Communications Commission and various American companies had led to the organization of the Satellite Business Systems, Inc. (SBS). This joint venture would be directed by a partners' committee appointed by IBM, Aetna Casualty and Surety Company and COMSAT General Corporation.³ By the fall of 1977, SBS had reserved geostationary parking slots⁴ and 14/12 GHz

21 September 1977, sec. 2, p. 42.

NOTE: Telesat Canada, Teleglobe Canada, TCTS and CN/CP Telecommunications are members of a lobbying organization called: the Canadian Telecommunications Carriers Association.

¹Canada, Telesat Canada, Annual Report 1975, p. 5. The crown enterprise would provide long-line circuits. It received an engineering/design study contract worth \$250,000.

²Op. cit. See page 138.

³"The shuttle opens the space frontier to U.S. industry," Business Week, 22 August 1977, p. 50. In 1973, the CML Satellite Corporation was organized by COMSAT General Corp., MCI Communications Corp. and Lockheed Aircraft Company. Several months later, an application was filed whereby it would be reorganized with IBM as the majority shareholder. The FCC countered with its *balanced* CML option which led to another reorganization. In July of 1975, COMSAT General Corp. bought the Lockheed shares and renamed the joint venture: the COMSAT General Business Communications Inc.

⁴United States, National Aeronautics and Space Administration,

frequencies, at least with NASA. This joint venture had also received bids for three satellites worth seventy million dollars and for the installation of upwards of three hundred earth stations.

Back in 1976, two applications were submitted to the federal regulatory commission responsible for telecommunications in Canada. Canadian Pacific Limited filed an application for two forms of interconnection: dial-access to Bell Canada's local switched systems and attachment of foreign and/or customer-owned peripheral equipment (further details in the next chapter).¹ The federal Cabinet approved in principle the proposition that it was expedient for its crown enterprise to join the continental telephone consortium. Then, arrangements were finalized for the submission of the TCTS/T Agreement to the Canadian Radio-television and Telecommunications Commission *without prejudice*.

One interpretation of the provisions in the membership agreement is quoted below:²

- . TCTS would commit itself to a large percentage of the available capacity - later defined as 24 of the dual-width RF channels (the bandwidth of the Anik C design is 54 MHz, selected because it can carry two full television signals);
- . Telesat would still own the earth station equipment - a highly contentious point which

"Operational Satellites," Washington, D.C., 21 April 1978, (Diagram.)
 NOTE: This document shows the Anik I-F-2 and a SBS satellite parked in the same slot in the middle of the optimum space window for Canada.

¹ CNCP Telecommunications, "Application for Interconnection to Bell System - An Overview: The Issues and Positions," Montreal, Québec, 1978, (Brochure.)

² Hutchison, "Definitive story on the Telesat/TCTS affair," p. 18.

Telesat would not concede during the negotiations - but the terrestrial companies could supply all related civil works and utilities, as well as provide maintenance;

. Telesat could lease channels only to approved telecommunications carriers, or to other agencies wishing to conduct experimental work only;

. TCTS would provide a minimum rate of return on invested capital - in the initial years, at a fixed rate, and after 1981, on the basis of weighted average of the earned rate of return of the federally regulated members of TCTS.

Ostensibly, the idea was promoted by the Telesat president. Allegedly, the above proposition was only conceived after the finance department had advised the crown enterprise that further assistance might not be forthcoming.¹

Three points should be highlighted. By design, due process or chance, the search for commercial viability had been confined to three options:²

. A proposal made by CNCP contemplated the establishment of a new entity comprising CNCP, TCTS and Telesat ...

. The second alternative - the long-term lease approach - was based on a 15-year service agreement between Telesat and TCTS....

. The third alternative - the membership approach - was selected as the superior and the only practical alternative.

The façade of Telesat independence (see Supplementary Exhibit K3) would be maintained in spite of two things. A provincial justice minister pointed out that: "... all costs associated with the development of satellite technology will now be borne by telephone company subscribers."³ The first

¹ Hutchison, "CRJC hearing's evidence: Telesat's decision to join phone company a Golden one?" p. 10.

² Canada, Telesat Canada, "Rationale - Motivation - Alternatives," pp. 2-3.

³ Letter of Intervention from the Attorney General of British Columbia

communications minister had stressed in the House of Commons that: "... there will be no power without financial responsibility and no responsibility without power."¹ The façade would be weakened for the marketing department. It had not only been reduced in size and stature² but also would in effect be merged with its counter-part(s) in the TCTS.

The commercial restrictions³ on the Telesat operations were increased. Firstly,⁴

Telesat may provide satellite and earth station facilities separately from this Agreement for experimental purposes, or other specialized space activities not related to the business of TCTS.

Two relevant concepts were introduced earlier in this case study. A Bell System philosophy is that the *system is the solution*. A TCTS axiom is that a single common carrier should represent a given region, territory or province. Are there any commercial activities in this policy field which are not related to TCTS business? Secondly,⁵

Subject to the provisions of Part A, paragraph 12, ~~6~~
Telesat shall not build, own, operate, maintain or

to the Canadian Radio-television and Telecommunications Commission, Victoria, B.C., 14 March 1977, (Mimeographed,) p. 6.

¹Canada, Parliament, Debates (Commons), 1st session, 28th parliament (1968-69): 7493.

²Op. cit. See page 137.

³G.D. Hutchison, "Retail combine? Telesat deal may dish special users," Financial Post, 4 June 1977, sec. 1, p. 3.

⁴Canada, Telesat Canada, Letter of Application to the Canadian Radio-television and Telecommunications Commission, Ottawa, Ontario, 21 January 1977, (Mimeographed,) p. 6.

⁵Telesat Canada et al, "Memorandum of Understanding," clause 11, p. 5.

control any terrestrial transmission facilities in TCTS/T members' territories, except for the purpose of the operation and the control of the space segment of the system, and only then when such transmission facilities cannot be provided to Telesat's satisfaction by the TCTS/T members.

Is the crown enterprise being confined in reality to nothing more than station-keeping duties and *rubber-stamp* approval of common carrier design specifications?

By the end of 1976, the Telesat board had approved the memorandum of understanding (see Supplementary Exhibits K1 and K2). Then, the crown enterprise announced a multi-million dollar program of expansion and development which could cover a ten-year period.¹ Next, the domestic telegraph consortium served notice that its members intended to withdraw from the pooling arrangements for two R.F. channels in the 6/4 GHz frequency band. In mid-February of 1977, Telesat Canada officially solicited bids for three Anik II, multiple-beam satellites which would operate in the 14/12 GHz frequency band.²

The CRTC received a total of thirty-four interventions³ concerning the TCTS/T Agreement. More importantly,⁴

During the lengthy hearings of the CRTC, Telesat was forced to go public for the first time since its creation in 1969 and to account for itself to the nation.

¹"Telesat is member of Bell-dominated phone association," Citizen, Ottawa, 10 December 1976, sec. 1, p. 9.

²Canada, Telesat Canada, Annual Report 1977, pp. 2-3.

³Canada, Canadian Radio-television and Telecommunications Commission, "Telesat Canada Application for Approval Agreement Under Which Telesat Becomes a Member of T.C.T.S.," 4 vols., Ottawa, Ontario, 1977, (Mimeographed.)

⁴Hutchison, "Definitive story on the Telesat/TCTS affair," p. 16..

Late in August, the Commission released its ruling and disapproval of the membership agreement on two grounds (see Supplementary Exhibit K3). The Telesat board appealed and the Cabinet varied the ruling¹ of the regulatory commission on the grounds that: "... the Governor in Council has concluded that the public interest will be better served if the Telesat Canada Proposed Agreement is approved."²

A suit which sought to nullify the order-in-council was filed in the trial division of the Federal Court of Canada by the Consumers Association of Canada. The case was lost and reportedly: "... even some Government lawyers were surprised (pleasantly) by the fervor with which the court embraced the Cabinet's position."³ Even so, an appeal was filed with the Federal Court of Appeal. Several other suits which seek to have the TCTS/T Agreement set aside remain unsettled but: "... it is the opinion of management, based on the advice of counsel, that these actions will not succeed."⁴

The arguments in the memorandum to cabinet from the communications department and the reasons for the cabinet conclusion remain *secret*. The power to issue or deny licences is an effective - though visibly coercive -

¹G. Stevens, "Vary or rescind," Globe and Mail, 25 January 1979, sec. 1, p. 6.

²Canada, Privy Council Office, "Order-in-Council: P.C. 1977-3152," Ottawa, Ontario, 3 November 1977, (Mimeographed.)

³Stevens, "Vary or rescind," p. 6.

⁴Canada, Telesat Canada, Annual Report 1977, Note 11, p. 25. Suits were filed against the crown enterprise by: CP Ltd., CableSat Ltd., and Consumers Association of Canada.

form of leverage in a win/lose situation. Within this context, the fourth communications minister did offer one tentative explanation which is quite consistent with the main criticism of the TCTS recorded in the green paper.¹ Reportedly, she commented that: "... it gives me a say in the planning of the telephone system in Canada."²

During the summer of 1977, three bids were received by Telesat Canada. The crown enterprise immediately identified one company as the preferred supplier³ with which the communications department and Spar Aerospace Products Ltd. could proceed to negotiate Canadian content and sub-contract work. Apparently, the façade surrounding the bid solicitation and contract award process had become so transparent that the Canadian aero-space company refused to waste either time or money on dealing with anyone but the prime contractor.

In April of the next year, the fourth communications minister confirmed that approval of the Anik II purchase agreement had been given even though the costs had risen by thirteen million dollars.⁴ Three days later, the president of the crown enterprise officially confirmed that the Hughes Aircraft Company had been awarded a fifty-four million dollar

¹Op. cit. See page 102.

²F. Howard, "Bureaucrats," Citizen, Ottawa, 7 November 1977, sec. 1, p. 2.

³G.D. Hutchison, "Telesat out of orbit after CRTC decision," Financial Post, 10 September 1977, sec. 1, p. 12.

⁴Canadian Press, "Means more jobs: Sauve - Telesat contract approved,"

contract for three satellites with forty per cent Canadian content. This package deal was tied into the SBS procurement¹ and would include five million dollars worth of export business over the next few years.

Each spacecraft would be equipped with twenty travelling wave tubes and could therefore provide an effective capacity of sixteen R.F. channels² (see Supplementary Exhibit L7). This duplicate trilogy of satellites would: "... form the backbone of east-west telecommunications in the 1980s."³ Both the Anik IBs and IIs are scheduled for launch by a NASA space shuttle,⁴ Delta boosters⁵ or European ones. In October of 1978, the fourth communications minister announced the refurbishment of the federal laboratory. One of the reasons which was not pointed out previously was

Citizen, Ottawa, 13 April 1978, sec. 4, p. 64.

NOTE: Several weeks before this announcement, one interviewee stated that negotiations were stalled since the Hughes Aircraft Company was holding out for a higher price.

¹"In business this week: Companies - A setback for IBM," Business Week, 11 September 1978, p. 64. The U.S. District Court of Appeals ruled that the FCC hearings had not adequately covered the anti-trust implications of the SBS application.

²"Companies In The News: Hughes Aircraft will build 3 Telesat satellites," Globe and Mail, 15 April 1978, sec. 2, p. B4.

³Canada, Telesat Canada, Annual Report 1977, p. 2. About twenty-four million dollars of sub-contract work would be divided between Spar Aerospace Ltd. (\$20 million), SED Systems Ltd. (\$2.0 million), Comdev Ltd. (\$1.2 million) and Fleet Industries (\$0.5 million).

⁴"A nightmare for NASA: Industry apathy greets heralded space shuttle," Citizen, Ottawa, 6 January 1979, sec. 1, p. 21. Engine problems may delay the entire program. SBS estimated that the shuttle costs would be \$9,000,000 versus \$26,000,000 for a Delta booster.

⁵"New Economies," Dateline: TeleSat 4 (Spring 1977): 2.

that the repairs and modifications would allow Spar Aerospace Ltd. to test the Anik II-F-3 in that establishment.

By design¹ or chance, the approval of the membership terms and the draft contract coincided with four other changes. The federal railway company executed² an agreement for the use of the Bell-Northern #2 channel. After five consecutive years, the CBC president no longer found it necessary or expedient to sit on the Telesat board (see Supplementary Exhibit N2). The crown enterprise inaugurated service to the Frontier TV network (see Supplementary Exhibit Q2). The federal broadcasting company acquired additional ownership rights including the provision of: "... necessary auxiliary earth station services such as civil works, shelter and installation."³

A week before the cabinet variance of the regulatory ruling on the membership agreement, the fourth communications minister confirmed two related items. A review of the earth station ownership policy was underway. The crown enterprise had been advised to revise: "... its long-standing policy of leasing only complete channels."⁴ During the summer of 1978,

¹Op. cit. See page 174.

²Canada, Telesat Canada, "TeleSat: Summary of Earth Station Services," Ottawa, Ontario, 3 January 1979, (Mimeographed.) The Sachs Harbour earth station in the Northwest Territories went into service on 4 April 1976.

³Idem, Annual Report 1976, p. 4.

⁴"Ottawa overrules CRTC's decision on Telesat," p. B4. One month later, the communications department requested the submission of briefs on this subject until March 1978.

three bids were received by Telesat Canada for ten 14/12 GHz earth stations. Their cost quotations apparently ranged from fourteen to twenty-one million dollars (see Supplementary Exhibit P1). Based upon the material presented so far, it would seem reasonable to predict that the multiple beams on the Anik IIs will be dedicated¹ to inter- or intra-regional² traffic in such a way that earth station ownership by the common carrier(s) which lease the circuit(s) will be recommended by the communications department.

The procurement of the Anik IIs raises a number of questions. What weight was given to the considerations quoted below:³

Multi-hop operation is undesirable and in some cases unacceptable for the following reasons:

- . Transmission delays
- . Increased cost due to multiple use of satellite and ground facilities, and
- . Inefficient use of the spectrum and the orbital arc?

Why weren't the same criteria of *off-the-shelf* manufacturing capability and proven operational experience applied to the selection of the first batch in each of the two generations of satellites? In other words, where did the Hughes Aircraft Company acquire experience that could match the RCA Corporation ones from the construction of the Hermes and Anik IA-F-1? Is five million dollars worth of exports an adequate rate of return⁴ from

¹Canada, Telesat Canada, Annual Report 1976, p. 4.

²Ibid, pp. 8-9.

³R. Staminger, "Intelsat vs. Regional Systems: Politics and Technology Determine the Outcome," Satellite Communications 2 (May 1978): 41.

⁴J. Glenn, "The dawning of industry in orbit," Globe and Mail,

the couple of hundred million dollars invested in experimental, prototype and/or developmental spacecraft?

4. Summary

What about the central hypothesis? To-reiterate briefly, a final assessment of two aspects - matching of influence and blending of value(s) or premise(s) - has yet to be rendered. The planned replacement of the 6/4 GHz spacecraft indicates that all three roles will probably continue to exist during the next decade. Telesat Canada will act as a common carrier only for the national distribution of CBC - perhaps CATV and pay television - programmes. It will function as a carrier's carrier for Bell Canada into remote and northern sites. The crown enterprise will serve as a carriers' carrier and provide southern trunk line circuits under explicit financial and stringent cross-over conditions.

The CBC has already been granted ownership rights for certain earth stations used to distribute its programmes. A similar grant to the common carriers is probably in process. One indication is that 14/12 GHz units will be located atop central switching office buildings.¹ Another indication is that Telesat responsibility has been contractually limited

21 August 1978, sec. 1, p. 7. A study by Midwest Research Institute indicated that by 1969, every dollar that NASA spent on r&d had returned two dollars to the U.S. economy.

¹W. Kerr, "Twin-tower complex should give Montreal building shot in arm," Globe and Mail, 9 December 1978, sec. 2, p. B14 and "Inside Metro: Bell to build near Eaton Centre," Globe and Mail, 9 January 1979, sec. 1, p. 3.

to a portion - perhaps a *token* one - of these circuits. In other words, there has been an explicit division rather than a significant matching of influence.

Based upon the evidence in this chapter and earlier ones, it would seem reasonable to assume two things about the productivity of any system planning outputs. Economic criteria and the comparative advantage(s) of satellite circuits over terrestrial technology were set aside by cabinet decree(s) with the consent of the common carriers and the blessings of the provincial government(s). Disillusionment with federal efforts recently prompted the following criticism by a Science Council executive:¹

Due to the lack of central decision-making authority, our space policy has been characterized by reactions to disconnected events and by inter-departmental fragmentation of resources. Fragmentation within government is reflected in the state of Canada's space industry, which has been left without either the confidence or the sense of purpose so critical to new investment and to industrial stability.

Based upon the findings in this case study, neither were the events *disconnected* nor was there an absence of a *central authority* (see Supplementary Exhibit E1). On the one hand, the federal Cabinet was a forum for co-ordination. On the other hand, the TCTS/T or something else may be a new duplicate or replacement headquarters organization.

¹J.J. Shepherd, "We've got a space program - let's make the most of it," Financial Post, 16 September 1978, sec. 1, p. 7.

The Prime Minister bewailed the lack of debate on the social implications¹ of satellite communications at a Liberal Party Convention near the end of 1969. The pertinent passage from his speech is quoted below:²

In such a world there will be no ABMs capable of defending a sovereign state from an inter-continental idea. The strength of a society will lie not in the number of its military forces, but in the internal consistency of its system of values, in the unity of purpose and feeling between the different groups in its population, and in the mutual understanding of what governments do and what people want. Evolving and maintaining a dynamic social harmony will be a major responsibility of our political parties. We must devise more effective means to achieve it.

The Trudeau vision stands in contrast to the realities that were actually confronted. The studies commissioned by the transport and industry departments were declared *confidential*. The MacIntosh and other PCO studies were in effect stamped *secret* (see Supplementary Exhibits S1-3). At best, the white paper was bland. At worst, it was designed to lull or mislead the general public about certain negotiations which must be completed before commercial adoption was feasible.

The socio-cultural experiments carried out on the Hermes or scheduled for the Anik IA-F-1 could have been conducted for the most part on the ATS-6 or Anik Is. Consequently, it would seem reasonable to assume two things. Federal forays into the communications policy field during the past decade

¹Canada, Parliament, Debates (Commons), 2nd session, 28th parliament (1969-70): 3615.

²Idem, Office of the Prime Minister, "Notes for Remarks by the Prime Minister at the Harrison Liberal Conference," Harrison Hot Springs, B.C., 21 November 1969, (Mimeographed,) p. 5.

and a half were designed to confuse and selectively de-stabilize rather than foster a national sense of *social harmony*. Social criteria were as much a part of the *ballyhoo* as the economic ones.

Constitutional power and political expediency remain. The only two premises from the ones listed in Appendix I which provide an underlying rationale for the apparent *ad hoc* and inconsistent system planning choices described in this chapter fall into these categories. Specifically, the down-side risks connected with the loss(es) of a Canadian space window and some form of public policy leverage over the provincial governments and the continental telephone consortium can account for the 1962-78 reorganization and managerial interventions of the federal Cabinet (details in the next chapter).

Based upon the cumulative evidence on the impact of the TCTS/T Agreement, it would seem reasonable to assume that the procurement of 14/12 GHz key facilities is coinciding with two important changes. One will be the commercial adoption of satellite communications in Canada under conditions which have been rendered predictable and controllable by the contractual provisions in the service agreements, TCTS/T Agreement, etc. The other is another substantial loss of Telesat independence in that *de facto* administrative control over the crown enterprise is being transferred from the federal Cabinet to the common carriers.

These crucial assumptions render the quotation on the next page particularly pertinent. The first communications minister commented upon

the amendment to Bill C-184 which was proposed by the continental telephone consortium as follows:¹

Do the implications of this phrase whether attained directly or indirectly raise the legal possibility that Telesat Canada, ... might eventually abdicate the responsibility of itself establishing satellite telecommunications systems? It is not the government's intention to create a corporation involving public and private investments which could legally have the power to ask another entity, let us say the common carriers, to carry out the task of creating and building and operating a domestic telecommunication system, and in turn, provide it or lease it back to Telesat.

The possibility that the federal Cabinet rather than the crown enterprise *abdicated the responsibility* by allowing duplicate space systems on top of surplus trans-continental terrestrial circuits will be more fully examined in the next chapter.

¹Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 39, p. 2049.

CHAPTER 9: TELESAT CANADA - ADMINISTRATIVE CONTROL

Chapter Nine sets out to examine why a transfer of administrative control may have become expedient. Thus far, the central hypothesis has been found valid in regard to two aspects. There is a lack of equality in formal policy-making control. There is not an identical - even a close - match in the tripartite influence over certain choices which result from the system planning - or lack thereof - of key facilities. Particular attention will now be given to the third aspect; specifically, the possibility that value(s) or premise(s) were blended based upon political expediency. Evidence will be sought of the existence of either an official but ~~confidential~~ plan or an unwritten and ~~secret~~ one. The supposition is that details about either kind of plan will collectively provide an indication of which party(s) is actually exercising policy-making and/or administrative control over the Telesat decision-making process.

The chapter is divided into three sections: integration and rationalization, definitive arrangements and alternate rationale for the transfer of administrative control.

1. Integration and Rationalization

Section One seeks to answer one question. Can the federal Cabinet justify the five hundred million dollars in unrecoverable - perhaps even unnecessary - costs accrued on account of its forays into the communications

policy field between 1964 and 1978?

During the second reading and debate on the principles in the Department of Communications Act of 1968-69, the first communications minister emphasized that:¹

We intend to evolve a national communications plan and a national communications policy to integrate and rationalize all systems of communications.

The first section is therefore divided into three segments: integration, rationalization and summary.

(a) Integration

During a Commons standing committee hearing on Bill C-184, a Québec-Téléphone executive predicted that: "... this bird will not fly without proper regulation and planning."² That year, the common carriers were confronted with the imminent adoption of satellite communications on an experimental or operational basis. Their plea was that: "... one telephone system is the best answer for a country in order to assure the ability of instant and efficient connection."³ Ten years later, they are faced with the imminent adoption of two-way cable television on an

¹Canada, Parliament, Debates (Commons), 1st session, 28th parliament (1968-69): 6079.

²Idem, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 36, p. 1845.

³Idem, Proceeding No. 34, p. 1718.

experimental basis¹ and/or national pay television on an operational one.² Their argument now is that:³

Canada's telecommunications carriers, alone, should provide ultimately an integrated local telecommunications services distribution network in each area of operation.

A few pages later, this association of federal, provincial and privately-owned common carriers (see Supplementary Exhibit D2) argued that:⁴

An integrated plant will be inevitably in the best public interest for the following reasons:

- (i) co-ordinated system planning
- (ii) improved market for Canadian manufacturers
- (iii) avoidance of unnecessary plant duplication
- (iv) economies of utilization
- (v) economies of scope
- (vi) lower cost of operation/administration
- (vii) optimization of new technology
- (viii) universal service
- (ix) service reliability

¹R. Stephens, "2-way cable market test sought," Globe and Mail, 23 November 1978, sec. 2, p. B2.

²B. Kirby, "Sauve plans pay-TV system despite CRTC disapproval," Globe and Mail, 15 March 1978, sec. 1, p. 2. On 16 June 1977, CN/CP Telecommunications and Agra Industries Ltd. submitted a brief in response to a CRTC request. They argued that a crown corporation should install a national pay television network. One year later, Agra Industries Ltd. and 9 CATV systems announced a plan to form a trans-Canada cable system using Anik circuits for long-lines.

³Canadian Telecommunications Carriers Association, "Submission to the Consultative Committee," p. 3.
NOTE: In the above copy, the word *a* had been scratched out and replaced by the hand-written phrase *an integrated*.

⁴Ibid, pp. 9-11.

During the decade between the two pleas, the *interconnection* imperative disappeared. The keynote word in the second quotation and list of headings on the previous page is *inevitably*. It raises one of the most fundamental and important questions which has bedevilled public policy efforts in the past. Is there a natural monopoly¹ or is this market condition on a provincial or national scale created by edict(s) and/or induced by the deployment of patent pools, financial/political clout and exclusive interconnection contracts?

A decade ago, the U.S. President's Task Force on Communications Policy noted that:²

A single entity for transmission would not have a vested interest in or preference for any particular technology or class of service.

Then, its members recorded two notes of caution. They warned that: "... the danger would remain that a single entity might be slow to grasp opportunities and economic operation."³ They criticized the thrust of U.S. and state regulatory processes in that:⁴

Rather than taking the place of competition in markets having pronounced natural-monopoly features, regulation in the communications industry, in our opinion, has at times acted as a constraint on competition even in markets which do not have such features.

¹Op. cit. See page 35.

²United States, President's Task Force on Communications Policy, Final Report, p. 2-28.

³Ibid. See page 83.

⁴Ibid, p. 9-23.

Lastly, the task force members emphasized that:¹

Public policy should promote an environment assuring free and competitive opportunity for such developments without impairing the integrity and viability of the basic telephone network.

This conundrum begets yet another query. Was *integration* the cornerstone premise of a Canadian communications *plan* and *policy* which may have been secretly laid in the mid-to-late 1960s but officially remains undeclared?

Several pieces of evidence support this contention. The TCTS/T Agreement states quite explicitly that: "... the Parties hereto desire to operate an integrated terrestrial and satellite communications system."² By implication, the *desire* on the part of one or more of the parties had been to operate in some other way. In the spring of 1978, the Telesat chairman reportedly told a Montreal seminar on the conserved society that:³

A monopoly carrier system for all kinds of electronic communications in Canada - telephones, television, computer systems, electronic mail and other services - is inevitable.

During the late fall of that year, a Bell Canada chairman wrote a *confidential* letter to the fourth communications minister. The pertinent passage reads as follows:⁴

¹United States, President's Task Force on Communications Policy, Final Report, p. 6-6.

²Telesat Canada et al, "Memorandum of Understanding," p. 2.

³M. Laws, "Industry at the crossroads: Cable TV companies aiming for satellite network," Financial Post, 10 June 1978, sec. 1, p. 5.

⁴Letter from the chairman of Bell Canada to the communications minister, Montreal, Québec, 26 October 1978, quoted in G. Stevens, "Arbitrary and secretive," Globe and Mail, 14 December 1978, sec. 1, p. 6.

I am delighted to have your affirmation that ownership of integrated systems by the telephone companies is consistent with the Government's policy.

When was the ownership policy approved by the federal Cabinet? One interpretation of the above sentence is that an agreement was reached on one or more *unspecified* occasions in the past.

Shortly after portions of the above letter were reported in the press, a letter-to-the-editor was published by the same newspaper. The relevant passage in this letter reads as follows:¹

There is no stated or unstated policy at the federal Department of Communications, as yet, with regard to the ownership of any potential future integrated delivery system.

There are two keynote items here. It is assumed that policy development must await a consensus within the communications department or a declaration by the Minister.² Collaterally, there is no explicit mention of the central agencies and the federal Cabinet.³

On the one hand, a TCTS president claimed back in 1976 that:⁴

¹Letter from the president of the Canadian Telecommunications Carriers Association to the editor of the Globe and Mail newspaper, Toronto, Ontario, 19 December 1978, sec. 1, p. 7.
NOTE: The chairman of the CTCA is the president of Teleglobe Canada.

²F. Howard, "Sauve won't let Juneau dominate," Citizen, Ottawa, 6 December 1975, sec. 1, p. 3.

³Op. cit. See page 81.

⁴Letter from the president of the Trans-Canada Telephone System to the general managers of CN/CP Telecommunications, 1 September 1976, Ottawa, Ontario, (Mimeographed.)

The TCTS proposal for a closer relationship with Telesat Canada is a somewhat altruistic one with little direct benefit to TCTS but with long term benefits to the public of Canada.

On the other hand, the federal regulatory commission concluded that:¹

While the Agreement was not illegal under the Telesat Canada Act, the erosion of Telesat's decision-making capacity which would be caused by the Agreement would not be consistent with the intent of the statute to create an independent autonomous corporation providing satellite services on a commercial basis.... grounds for concern that a potentially competitive situation in the long-haul data and video or other private line services would be restricted by the Agreement, in a manner that does not appear to be justified.

Based upon the testimony before the Commons standing committee, full integration cannot occur or will not be allowed until at least four Heavy Route earth stations are in routine operation (see Supplementary Exhibits Q1 and Q2). Until that configuration is *in situ*, television and other telecommunications signals cannot be routed over either space or terrestrial facilities with the same frequency bands. Equally important, a computerized exchange cannot automatically make the selection based upon performance feedback data, loads and cost factors.²

The existence of even a tentative scheme for the utilization of 6/4 GHz facilities as receive-only earth stations in a 30/18, 4 GHz switched

¹Canada, Canadian Radio-television and Telecommunications Commission, Telecom Decision CRTC 77-10; p. 3:

NOTE: The section referred to above was probably 6(1)(f).

²D.A. George, "Telecommunications Technology," in Telecommunications for Canada, ed. H.E. English (Toronto: Methuen, 1973), pp. 267-9.

beam system (see Exhibit 10) has not yet been officially acknowledged. One explanation is the supposition that there never was a formal plan which could have provided a focal point for consensus-building and thereby facilitated the blending of policy(s) other than the political value(s) shared by both parties from the start.¹ Without such a plan, it became possible to mask gross inconsistencies in the application of technical and economic premise(s) to the Telesat decision-making process.

The post-membership description below indirectly supports the above supposition.

The advent of the satellite telecommunications system in Canada ... added considerable capacity for the multipoint distribution of signals ... The satellite is integrated already into the trans-Canada communications networks where it provides useful route diversity for terrestrial systems.²

The keynote items here are three-fold. The first one is the omission of any reference to point-to-point capacity additions. The second one is the avoidance of any claim that the space and terrestrial systems are *fully* integrated. The third one is the emphasis on the utility of satellite circuits. The suggestion is that their primary importance stems from their ability to provide a different kind of *back-up*.³ Is the TCTS/T Agreement merely one of the outputs from an unofficial and unwritten plan based upon

¹L. Whittington, "Merely value judgements: Book slams corporate power report," Citizen, Ottawa, 27 January 1979, sec. 1, p. 29. The Royal Commission on Corporate Concentration report is a pertinent example of a futile exercise.

²Canadian Telecommunications Carriers Association, "Submission to the Consultative Committee," p. 8.

³Op. cit. See page 212.

a strategy (see Glossary) which involves an integration of long-line organizations but a rationalization of CATV licensees?

(b) Rationalization

Little evidence of sectoral rationalization was encountered during the research for this case study. What was uncovered in the analyses presented so far is evidence which indicates several other things. A reduction of capital productivity in terrestrial facilities in various regions of the country was mentioned in the previous chapter. It coincided with the installation of a 6/4 GHz space system whose capacity dwarfed domestic Canadian requirements (see Supplementary Exhibits L7-10, O1-3, and R1). In spite of or on account of these productivity losses, eight rate increases were granted to Bell Canada alone during the past ten years.¹ The cumulative impact of these approvals may have fostered so great an excess in toll rates that they are: "... impeding the country's economic development."²

The pertinent findings in a study by senior executives in a Canadian bank are paraphrased on the next page:³

¹R. Jamieson, "Customers will pay the price if Bell Canada doesn't get rate increase," Financial Post, 11 February 1978, sec. 1, p. 5.

²Canadian Press, "Long distance links most costly," Citizen, Ottawa, 28 February 1978, sec. 1, p. 12. The Royal Bank of Canada report was not introduced as testimony during the eighth increase application by Bell Canada until after the CRTTC had obtained a subpoena.

³J. Fleury, "Interconnection: a battle of giants," in search 5

Royal Bank officials have their doubts on the actual extent of the so-called competition that would occur between the two networks. The bank's representatives state that even in the field of long distance communications, where competition is possible, Canadian long distance rates are among the highest in the world, and that these high rates are holding up Canada's economic development. It seems, they add, that the newcomers in the field - CNCP Telecommunications and Telesat Canada - have in fact worked out an agreement with the telephone companies whereby all of them divide up the lavish profits generated by long distance telecommunications, rather than engaging in real competition with them.

Except for the error in which CN/CP Telecommunications is classified in the same *newcomer* category as the crown enterprise, the keynote items are two-fold. The belief that long-line competition has become the solution rather than a potential problem. The implication that the above parties have at least agreed upon a revenue sharing formula. If so, what kind of compromise has been or will be reached on market segmentation and territorial delineation?

Serious doubts have been raised on several occasions in this thesis about the *effectiveness* of the federal government and common carriers, albeit working either separately or together. The above study hints that the raw power of the continental telephone consortium may have become so awesome that its members can afford to trifle with *efficiency*.¹ The crucial assumption which underlies this supposition and the Royal Bank assessment is that the multiplier effect of excessive toll charges is impeding Canadian economic development.

(Summer 1978): 6. The two networks are the TCTS and CN/CP Telecommunications.

¹Coon, American Tel & Tel, p. 137. This performance criteria has been the main bulwark against government acquisition of facilities ever since 1879.

Based upon the material presented so far, it would seem reasonable to assume two things. The failure to arrange for rationalization entailed wasteful registration of scarce resources. The improper use of frequencies, orbits, human, material and capital resources incurred cost increases which were borne by taxpayers and/or telephone subscribers.¹ Any delay in stimulating rationalization was probably caused by the cabinet and/or common carrier desire to await an auspicious moment rather than the commission of an error in the form of an oversight.

A potential nucleus for a rationalization plan can be traced back to two sources. One is the early contractual arrangements between the common carrier and CATV operators² which may have reduced these companies to the status of licensees. The other is one of the Telecommission Reports in which the TCTS specified that:³

With respect to CATV inter-city distribution cable, the telephone carriers consider that ownership by their companies should be the normal arrangement.

The fifth conclusion of the 1968 presidential task force was that: "... restructuring the industry will require action by Congress."⁴ Assuming for the moment that parliamentary and/or legislative intervention

¹Op. cit. See page 189.

²Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 37, pp. 1911-3.

³Idem, Department of Communications, Analysis of Relationships, p. 87.

⁴United States, President's Task Force on Communications Policy, Final Report, p. 2-47.

would also be mandatory in Canada, an early indication that the *promised* plan was ready occurred in 1978. Reportedly, a TCTS president said that: "... cable had better prepare itself to be a customer, not a competitor, of the telecommunications industry."¹

Another indication was the sudden appearance of the Consultative Committee on the Implications of Telecommunications for Canadian Sovereignty (see Supplementary Exhibit G3). Its briefings and hearings would be conducted *in camera* and any documentary inputs would remain *unlisted*. The *veil of secrecy* deployed around its deliberations in order to prevent delays and/or stimulate public interest raised a number of questions. What kind of *confidential* negotiations preceded the formation?² Why did the chairman-designate insist upon the classification of consultative committee rather than task force? How important was the immediate loss of credibility³ given a decade of procrastination, the imminence of a general election and policy papers prepared by the Gamma Group?

The Canadian Cable Television Association submitted a brief to this committee: The pertinent passage in their brochure-like document reads as follows:⁴

¹ Marshall, "Phones, TV, mail on single system called inevitable," p. 5.

² R. Sheppard, "Communications subject of study for committee," Globe and Mail, 1 December 1978, sec. 1, p. 8.

³ L. Whittington, "Regulation changes *threatening*: Cable TV industry in shock," Citizen, Ottawa, 12 February 1979, sec. 1, p. 14. This article quoted a description of the non-experts on the committee as *a bunch of dodos*.

⁴ Canadian Cable Television Association, "Cable: Canada's choice for the 80's," p. 2.

The essence of our proposal is that *rationalizing or restructuring* the telecommunications plant for technical and economic reasons is not the first priority of national policy as it effects the Canadian communications system. That priority, we believe is the development of content which better reflects Canadian needs and aspirations.

Three weeks later, an assistant deputy minister at the communications department confirmed the existence of official or unofficial plans to purchase batches of one- or two-metre earth stations. Reportedly, he also said that:¹

Ultimately, it will be possible for anyone to put an earth station on his roof and get television signals directly from a satellite... But this will not happen for a few years.... For now, the Government plans only a test of direct broadcasting by satellite to homes in rural communities that are too remote to get television programs by antenna or cable.

Based upon the material presented in both segments of this section, it would seem reasonable to presume that *long-line* facilities will be integrated but *local/inter-urban* ones will be rationalized.²

¹B. Keddy, "100 roof receivers to bring satellite TV to rural homes this year," Globe and Mail, 31 January 1979, sec. 1, p. 1. Apparently, conventional techniques cannot economically service 6,000,000 Canadians in 2,500,000 residences. Tenders were expected from Spar Aerospace Ltd. and SED Systems Ltd.

²G. Stevens, "How big is too big?" Globe and Mail, 12 January 1979, sec. 1, p. 6. In January, the CRTTC approved the takeover of Canadian Cablesystems Ltd. of Toronto by Rogers Telecommunications Ltd. of Toronto in spite of management resistance and a previous attempt to use a *confidential* understanding to in effect acquire a majority interest. Premier Cablevision Ltd. of Vancouver announced two weeks later that a 45 per cent interest in Western Cablevision Ltd. of Vancouver had been acquired. In mid-February, Rogers Telecommunications and Canadian Cablesystems vice-presidents announced that Cable Satellite Network Ltd. planned to invest \$4,500,000 in 130 earth stations and lease a whole or part of an R.F. channel for \$1,000,000 per year.

(c) Summary

In 1939, the common carrier philosophy was epitomized as follows:¹

Nobody in the telecommunications field was fond of the idea of competition. They had all experienced competition and they definitely did not like it. So far as their business was concerned, they could see no advantages in it.

Forty years later, the Federal Communications Commission had begun to allow competitive entry on a case-by-case basis.² This policy revision had, in turn, contributed to an increase rather than a decrease in Bell System rate of return. Yet, the continental telephone consortium et al continued to advocate an exclusive monopoly in Canada in order to avoid:³

The potential fragmentation and mutual inaccessibility of two (or more) systems, resulting from an injudicious reliance upon the foibles of the market place.

Plus ça change, plus c'est la même chose. Perhaps, the retention of common carrier power and ability to act *in camera* and unilaterally or as a single organization has always been the real reason for the above *philosophy of convenience*. These quotations also raise another question. Why have the regulatory commissions in Canada never been given enough statutory or budgetary clout to monitor and order improvements by the party(s) which fails to maintain reasonable and proper standards of interconnection?

¹Coon, American Tel & Tel, p. 42.

²"Compromising the regulatory restraints," Business Week, 6 November 1978, special report, pp. 130, 132.

³Canadian Telecommunications Carriers Association, "Submission to the Consultative Committee," p. 9.

Upon what reasonable grounds could these common carriers also assert that they have: "... consistently worked close to their maximum potential for the benefit of all Canadians."¹ For over a decade, the federal government must have known about the 1966 plan (see Exhibit 14) which the Bell System has sought to implement. In spite of this awareness of a viable scheme to fully integrate satellite and terrestrial facilities, the federal Cabinet has so far allowed duplicate space systems and arranged for the following dubious expenditures:

1969-77

Write-offs	\$'000
Obsolete 6/4 GHz facilities	76,820
Indirect revenue subsidization	77,064
Space r&d and policy development	263,900
TOTAL	417,784

By almost any standards and on the basis of the technological benefits alone, the transfers from American prime contractors to the Canadian aero-space industry, and from the Hermes to the Anik IIs were inadequate.

Consequently, it would seem reasonable to make the following assumptions. The promise rather than the actuality of *full integration* is the altar upon which the Canadian space program was sacrificed. Ostensibly, this action was necessary in order to maintain order. A more plausible explanation is that it was primarily done in order to preserve the status quo. When was the *sacrificial* choice actually made?

¹ Canadian Telecommunications Carriers Association, "Submission to the Consultative Committee," p. 13.

The report of the PCO Task Force on Satellites was submitted to the federal Cabinet in the summer of 1967. The white paper was released to the general public early in the spring of the following year. Sometime during that period, a verbal or written policy¹ was probably agreed upon which pre-determined the *fall-line* down which the operational and/or commercial adoption of satellite communications in Canada would be guided.

The policy concerned the complementary nature of the new technology, eventual integration² and designation of main contributors in the form of *captive* leasee(s). Once cabinet approval was explicitly or implicitly given and common carrier endorsement³ was received, the policy probably formed at least part of the drafting guidelines for Bills C-104, C-173 and C-184. Collectively, these statutes and the others which comprise the 1962-78 reorganization allowed for a vast array of options which could be used to mask the real course of domestic adoption. From this point onwards, a less than savoury set of value(s) and premise(s) not only held sway but also may have degraded the Telesat decision-making process. Public debate was supplanted once again by *in camera* negotiations during which *Sophist*⁴

¹"Requirements of the Program Definition Phase," cited in "Spacecraft Program Requirement Specifications," Canada, Telesat Canada, Ottawa, Ontario, 15 September 1969, (Mimeographed,) Attachment D, p. D-6. The contractor was required to review a document entitled: *Spacecraft Policy for the Canadian Domestic Satellite System*.

²Canada, Department of Industry, *Canadian Domestic Satellite Study*, sec. 3, p. 3.2.-1. See Supplementary Exhibits Q1 and R1.

³Op. cit. See page 216.

⁴W.T. Jones, *A History of Western Philosophy* (New York: Harcourt, Brace & Co., 1952), pp. 57-62. The philosophy of this ancient Greek

arguments not only could flourish but ultimately would prevail as predicted by the first communications minister.¹

2. Definitive Arrangements

Section Two seeks to answer five questions. What opportunities are being seized by the federal Cabinet and the common carriers amid the rhetoric, *ballyhoo* and periodic litany of *doom-and-gloom*?² Will the hybrid forms of communication facilities induce a revision of the legal principle on the separation of *carriage and content*?³ which was instituted in the USA in the 1930s? What traces can be found that a solution to the problems which they pose is *in situ*, imminent or in process? What is the probable technical and economic cornerstone upon which negotiations could or did proceed to prepare definitive arrangements? Are these understanding(s) or contract(s) the prerequisite for full integration and a prelude to sectoral rationalization?

A fundamental flaw in the past responses on behalf of the public interest was pointed out in the second chapter. Specifically, the chosen instrument approach has always entailed an abrogation of policy development responsibility(s) by one or more government(s). The 1968 presidential task

school of thought was that: *might is right*.

¹Op. cit. See page 240.

²Canadian Press, "Link with Bell called vital to CNCP future," Globe and Mail, 28 February 1978, sec. 2, p. B7.

³A.J. Ouimet, Rationalizing Canadian Telecommunications: A Plan for Action (Montreal: Gamma Group, 1978), pp. 9-13.

force described this *forgotten* duty as follows:¹

This is not to suggest that government can or should attempt to second-guess management decisions....

But our aim should be to have the capacity to take cognizance of those crucial decisions that determine the basic shape, costs and structure of our national and international transmission networks.

During a Commons standing committee hearing on Bill C-184, the federal broadcasting company drew attention to its main source of concern other than the possibility of inadequate appropriations. The CBC president testified that:²

If I thought that there was likely to be in the near future any great rush of private enterprise to install cable television in the Northwest Territories I might have some doubt about the wisdom of embarking upon this particular exercise.

A passage in a brochure published by the crown enterprise that was cited earlier³ seems to strike even closer towards the heart of this matter. To reiterate briefly, the technical and economic *cornerstone* is probably the *natural* cost effectiveness of satellite circuits in conjunction with coaxial or fibre optic cable for long-haul and local distribution, respectively.

An answer to the five questions posited on the previous page will be

¹United States, President's Task Force on Communications Policy, Final Report, p. 9-27.

²Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 35, p. 1797.

³Op. cit. See page 249.

presented in one or more of the following segments: long-lines, local/inter-urban switched systems and summary.

(a) Long-lines

As documented in the first two chapters of this case study, "... the Canadian communications system is in the midst of a crisis more profound than any that has affected it since the 1920s."¹ Any ameliorative steps² which sought to ensure uncertainty reduction on a permanent basis must have encompassed revenue sharing, market segmentation and territorial³ delineation. The existence of a forum(s) suitable for the preparation of definitive arrangements for a single *family communication company* can be traced back to the Long Range Planning Committee.⁴ This group was initially headed up by a Telesat assistant vice-president. It was set up two years after the conversion from an agency corporation to a crown enterprise. According to the federal regulatory commission, the quest did not commence until two years later. Officially, it started when the president

¹Canada, Department of Communications, "Press Release," 30 November 1978, Ottawa, Ontario, quoted in R. Sheppard, "Communications subject of study for committee," *Globe and Mail*, 1 December 1978, sec. 1, p. 8.

²United States, President's Task Force on Communications Policy, Final Report, p. 2-49.

³Canadian Press, "Bell Canada contract talks breakdown," Citizen, Ottawa, 31 January 1979, sec. 1, p. 19. In this article, Bell Canada was described as: *serving Québec, Ontario and the eastern Arctic*.

⁴Op. cit. See page 301.
NOTE: Another forum was the Gamma Group, in general, and the Delta Project,

of the crown enterprise: "... initiated a study of satellite applications in which one of the options considered was membership of Telesat in TCTS."¹

In February of 1976, the crown enterprise and the continental telephone consortium scheduled the first in a series of formal discussions. CN Telecommunications used a sub-lease or pooling arrangement with Bell Canada to place the first earth station in its western Arctic Thin Route system into service (see Supplementary Exhibit Q3). Was this change one of many adjustments which anticipated cabinet policy(s)? This kind of *insider* jockeying for position is a distinct possibility since according to a director from the communications department:²

In approving Telesat's joining the TCTS, the Government set conditions that CNCP Telecommunications would have the same right of access to the Telesat satellites as it had before Telesat became a member of TCTS.

In May of 1976, CN/CP Telecommunications was formally appraised³ of the circumstances which had led to the discussions between the Telesat management and officials from the telephone common carriers. That month, a new group in the finance department of the crown enterprise issued the

in particular. This group functions under the auspices of the Universities of Montreal and McGill. It is sponsored by an annual fee of \$5,000 paid by 15 subscribers including: CTCA, CRTTC, communications department, etc.

¹Canada, Canadian Radio-television and Telecommunications Commission, "Telecom Decision CRTC 77-10," p. 14.

²J. Davidson, Director of Information Services, Department of Communications, "Letters to the Editor: No incestuous relations in Bell-Ottawa dealings," Globe and Mail, 23 December 1978, sec. 1, p. 7.

³Op. cit. See pages 144-5.

first set (see Exhibit 8) of special assembly tariffs. Nine weeks later, the Telesat president moved that the Board should formally consider the membership proposal. Three dubious assumptions formed an integral part of this motion.

The first assumption was that the trilogy of options selected for detailed examination were the most reasonable and productive ones. By inference, the public interest would be served in each case since the crown enterprise later claimed that its directors, officers and management were:¹

Motivated by the desire to fulfill the policies of the Government of Canada as expressed in the White Paper and the objects of the company as outlined in the Telesat Canada Act.

Based upon the analyses of both documents in this case study, the above claim is essentially meaningless. The reason is that the substantive policy commitments² for which the federal Cabinet could be held accountable - except at a general election³ - were noticeable on account of their absence.

The second assumption was that the selection of the membership option was expedient since the crown enterprise could not earn an adequate return

¹Canada, Telesat Canada, "Rationale - Motivation - Alternatives," p. 23.

²Op. cit. See pages 108 and 171.

³G. Stevens, "The right to seek redress," Globe and Mail, 2 February 1979, sec. 1, p. 6. This reporter recommends three changes in existing appeal-from-cabinet policies, practices and procedures: statutory specification of formal procedures, notice of appeals sent to all interested parties and announcements of lobbying efforts by special interest groups.

on investment by itself and: "... unless the per channel cost of providing satellite services can be significantly reduced through a new (higher capacity) system."¹ Based upon the findings in this thesis, the emphasis on *new* is a partially correct statement while the inclusion of *higher capacity* is an erroneous one. The removal of the costly and unnecessary back-haul circuits² probably will contribute most heavily to any *reduction*. The validity of the second assumption was also indirectly questioned in the reasons for disapproval recorded by the federal regulatory commission (see Supplementary Exhibit K3).

The third assumption is that the prolongment of the existing state of affairs (see Exhibits 9 and 10) would have caused the following consequences:³

Firstly, to increase the cost of debt, assuming debt financing could be obtained, secondly, to restrict Telesat's ability to raise capital from institutional sources, and thirdly, to increase the probability of becoming dependent on the Federal Government and/or the carrier shareholders for further funding.

¹Canada, Telesat Canada, "Rationale - Motivation - Alternatives," p. 14.

²Letter of Intervention from the Attorney General of British Columbia to the Canadian Radio-television and Telecommunications Commission, Ottawa, Ontario, 4 April 1977, (Mimeographed,) p. 13.
NOTE: The Canadian Association of Broadcasters requested more R.F. channels on the next Anik I at the close of the Commons standing committee hearings on Bill C-184. In the CAB intervention against the TCTS/T Agreement, these broadcasters stated that capacity restrictions on the back-haul links had prevented their usage of any of the excess capacity on the Anik Is.

³Canada, Telesat Canada, "Rationale - Motivation - Alternatives," pp. 12-3.

Three aspects of the third assumption are particularly noteworthy. The first one is the omission of the general public as a source of *further funding*.¹ The second aspect is that either the resistance of the financial community has always been the crucial *block*² or it is being used as a *strawman*. The third one is that the question of whether or not this crown enterprise became more or less *dependent* on the federal government is somewhat spurious. The real issue - and the one under review in this chapter - is whether or not control was being shifted from the federal Cabinet to the common carriers.

In the summer of 1976, Canadian Pacific Limited once again³ wrapped itself in the mantle of a telephone company.⁴ On this occasion, it was in an application for interconnection with Bell Canada (see Supplementary Exhibit M2). Given the distribution of assets documented in Supplementary Exhibit M1, the description below from the Canadian Pacific submission seems an odd one:⁵

¹Lavoie, "Telesat needs money, won't sell public shares," p. 15.

²Op. cit. See page 241.

³Canada, Department of Communications, Study of Institutional Structure, p. 5.

⁴Op. cit. See page 70.

⁵CP Telecommunications, "Re: Access to Bell Canada system for telecommunication traffic," p. 5.

Today the system is operated, in part, in partnership with the Canadian National Railway Company which concurs in this application. The whole system operated by the Applicant, including the part operated in partnership with the Canadian National Railway Company, which is known as CNCP Telecommunications, is herein referred to as CP Telecommunications system.

Almost a year and a half later, the CNR was included as a co-applicant¹ at the request of Bell Canada. The specific target of these railway companies was later described in a brochure as follows:²

The Canadian telecommunications market generates gross revenues of \$3.56 billion annually. Of this amount CNCP estimates 87 per cent is earned by the non-competitive monopoly of the telephone companies' public telephone service. The remaining 13 per cent is the competitive portion of the market. It is within this latter segment of the market that CNCP and the telephone companies compete, primarily for the provision of private line voice and data communications services.

What is the outstanding issue(s) between these consortia?³ One possibility is that the actual difference of opinion is over whether viewdata⁴ (see Glossary) and/or electronic funds transfers⁵ should be classified as

¹Canada, Canadian Radio-television and Telecommunications Commission, "Telecom Order CRTC 77-270," Ottawa, Ontario, 28 October 1978, (Mimeographed.)

²CNCP Telecommunications, "Application for Interconnection to Bell System," p. 19.

³Canadian Press, "CRTC hearings into Bell links *gigantic struggle*," Citizen, Ottawa, 1 May 1978, sec. 2, p. 21.

⁴"Business Brief: Three men on a Viewdata bike," Economist, 25 March 1978, pp. 70-1.

⁵"Finance: City National makes electronic banking work," Business Week, 27 February 1978, pp. 76, 78.

message record services or computer communications (see Supplementary Exhibit M3).

In mid-August of 1976, the general managers of CN/CP Telecommunications forwarded a joint counter-proposal for a trans-Canada telecommunications consortium. The pertinent passage in their letter reads as follows:¹

- The solution proposed by CNCP contemplates the continuation of the competitive environment in Canada between CNCP and TCTS on a service basis but not in respect of long haul transmission facilities. We do not see TCTS, as presently constituted, providing a vehicle to accomplish this, rather, we propose establishment of a new structure containing Telesat, TCTS and CNCP which plans and develops long haul transmission facilities ... and assigns construction programs.

The formal reply from the TCTS was forwarded within three weeks. The noteworthy passage in their letter reads as follows:²

The close liaison contemplated between TCTS and Telesat is possible since the two organizations are not, and have not been in competition. Telesat has chosen to operate essentially as a carrier's carrier and hence its development is in cooperation with that of the other carriers.... the CN/CP proposal amounts to an arrangement between present competitors to enter into a non-competitive arrangement for the construction of long haul facilities. This is not, in our opinion, possible in the present environment between TCTS and CN/CP. If it were possible, the chief benefit would appear to accrue to CN/CP and not to the general public or the other participants.

¹Letter from the general managers of CN/CP Telecommunications to the presidents of the Trans-Canada Telephone System and Telesat Canada, Montreal, Québec, 14 August 1976, (Mimeographed.)

²Letter from the president of the Trans-Canada Telephone System to the general managers of CN/CP Telecommunications, Ottawa, Ontario, 1 September 1976, (Mimeographed.)

There are two errors in this statement based upon the evidence presented in this case study. The crown enterprise has acted *essentially* as a carriers' carrier and common carrier rather than as a carrier's carrier. This statement erroneously implies two other things. The possibility of *competition* between different or similar key facilities existed as a politically viable option. The Telesat management was allowed to make an explicit choice on its own.

The emphasis on *presently constituted, present environment and chief benefits* in these quotations indicates that the TCTS and Canadian Pacific Ltd. were at odds over three things. The first item was the precious right of veto over system planning outputs and revenue sharing arrangements. The second item was the bargaining tactics being employed by the privately-owned railway company. The third item may be the precise legal phraseology and equitable financial terms¹ that have been or will be included in the membership and/or interconnection agreement(s). Is the communications department acting as or on behalf of a mediator or arbitrator (see Supplementary Exhibit K1, paragraph 22) in this matter?²

¹CNCP Telecommunications, "News," Montreal, Québec, 13 December 1978, (News Release,) p. 2.

²Canada, Department of Supply and Services, Information Services Branch, "Weekly Bulletin of Business opportunities," Vol. 5, No. 51, Hull, Québec, 5 January 1979, (Printed,) p. 18. Under the provisions of two contracts (07SU.36100-7-9502 and 023U.36100-8-1056), Concordia University constructed a simulation model which could evaluate economies of scale, economies of scope and the question of natural monopoly. The initial contract cost the communications department budget \$34,980 and covered a period from 1 April 1977 to 31 March 1978. The second contract will require \$16,778 from the budget and will cover the period from 1 November 1978 to 31 March 1979.

This interpretation of the stakes is supported by two other statements. One was extracted from a regional intervention on behalf of the membership agreement; specifically,¹

AGT recognizes that in making this recommendation, consideration must be given to Canada's specialized common carrier, CN/CP Telecommunications, whereby they can obtain facilities from Telesat Canada at the same rates as applicable to the TCTS members.

The other is the two reservations expressed by the Telesat management. A conditional return on investment was guaranteed in the TCTS proposal (see Supplementary Exhibit K1). The formula in the CN/CP Telecommunications proposal was based upon payments by both consortia but: "... in proportion to their overall revenues."² Last but by no means least, the Telesat management was concerned that: "... many regulatory, governmental and private sector hurdles would have to be overcome."³

In December of 1976, the Telesat shareholders then the TCTS Board of Management approved the membership agreement. Between January and May of the following year, the Canadian Radio-television and Telecommunications Commission arranged several things. The membership agreement would be reviewed *without prejudice*. Selected parties were ordered to appear as

¹Letter of Intervention from the general manager of the Alberta Government Telephones to the secretary general of the Canadian Radio-television and Telecommunications Commission, Edmonton, Alberta, 4 April 1977, (Mimeographed.)

NOTE: In contrast to the public review of Bill C-184, Alberta officials and AGT executives did not appear before the CRTTC. Instead, their intervention(s) was confined to written submissions.

²Canada, Telesat Canada, "Rationale - Motivation - Alternatives," p. 17.

³Ibid.

co-applicants. A notice of public hearings was issued. A general submission was requested from the crown enterprise on rationale, motives and alternatives.

A joint letter from the solicitors for Canadian Pacific Ltd. and the Canadian National Railway Company argued that the Commission should disapprove of the TCTS/T Agreement since:¹

- (i) the within agreement is contrary to objectives sought to be achieved by the Telesat Canada Act;
- (ii) the within agreement eliminates competition between satellites telecommunication technology and other telecommunication technology, and between Telesat Canada and the members of the Trans-Canada Telephone System;
- (iii) the written agreement extends monopoly control of the members of the Trans-Canada Telephone System over local, switched distribution system to domestic satellite telecommunications in Canada;
- (iv) the within agreement is prohibited by the Telesat Canada Act.

When the regulatory ruling² was set aside, it indicated the possibility of two different kinds of cabinet motives and rationale.

On the one hand, that managerial body preferred to disregard the CN/CP Telecommunications arguments. It was undaunted by the one about the lost opportunities presented at the end of the second chapter in this case study.

¹ Letter of Intervention from the solicitors for the Canadian Pacific Limited and the Canadian National Railway Company to the Canadian Radio-television and Telecommunications Commission, Montreal, Québec, 14 March 1977, (Mimeographed.)

² Hutchison, "Telesat out of orbit after CRTC decision," p. 12.

It was undeterred by the destructive side-effects on the credibility of the CRtTC which could have been avoided since there was no statutory requirement (see Supplementary Exhibit 11) to submit the TCTS/T Agreement and/or to review the application.

On the other hand, that managerial body may have arranged for or could have ordered the submission of the original application and the appeal. In this way, the federal Cabinet could ascertain if public opinion¹ would tolerate - perhaps even laud - the emasculation² of a vital bulwark³ against coercive and/or unproductive exercise(s) of monopolistic power.⁴ Without support from an enlightened general public, the CRtTC could be silenced and/or by-passed in the event that this public forum became a source of embarrassment to the federal Cabinet and/or for the common carriers.

Since the variance was gazetted, a number of manoeuvres have been conducted by the federal Cabinet and the domestic telegraph consortium. The

¹ G. Stevens, "Deregulation," Globe and Mail, 1 February 1979, sec. 1, p. 6; Idem, "The essential function," Globe and Mail, 21 March 1979, sec. 1, p. 5; and Idem, "Change will not come easily," Globe and Mail, 22 March 1979, sec. 1, p. 6.

² Canadian Press, "CRTC independence in jeopardy - Boyle," Citizen, Ottawa, 23 March 1977, sec. 1, p. 20. Bill C-26 would permit swift and direct intervention rather than forcing the Cabinet to await an opportunity(s) to use personnel changes, parliamentary appropriations, etc.

³ Idem, "New competition bill dies," Citizen, Ottawa, 5 April 1977, sec. 3, p. 41. A number of eminent lawyers have stated that Canadian anti-combines statutes are archaic and inadequate.

⁴ Op. cit. See pages 152, 162. Theoretically, the regulatory process must both rely upon and display due process, fair play and the rule of law.

CNR and CPR began discussions on the reorganization of their telecommunications assets: "... to form a separate firm or remain under the railroad's wings."¹ Canadian Pacific Ltd. served the crown enterprise with a writ which claimed that the membership agreement with the continental telephone consortium was *ultra vires*.² CN/CP Telecommunications served notice then withdrew from the pooling arrangements with the TCTS³ (see Exhibit 8). An order-in-council was passed which authorized the reorganization⁴ of CN Telecommunications facilities - except for the southern trunk lines - under Letters Patent of Canada as two new⁵ CNR subsidiaries. CN/CP Telecommunications announced the closure of more

¹Canadian Press, "CN, CP agreed on closer links," Citizen, Ottawa, 1 March 1978, sec. 2, p. 30. Reportedly, merger discussions between the CPR chairman and CNR president began in September of 1977.

²"Satellite battle grows with CP serving writ," p. B10.

³Weir, Struggle for National Broadcasting in Canada, pp. 167-71. This action bears a striking resemblance to an incident in 1935 except that *the shoe is on the other foot*.

⁴Canada, Parliament, Debates (Commons), 2nd session, 28th parliament (1964-65): 8150, 1327-8. The CNR took over the Yukon Telephone Company in December of 1961. Eighteen years later, its assets and business probably provided the nucleus for Northwest Telecommunications, Inc.

⁵"Across Canada: CN splits off telephone service," Globe and Mail, 12 February 1979, sec. 1, p. 9. In December of 1977, a Bell Canada subsidiary announced that a \$6,000,000 SP-1 regional exchange would be installed at Grand Falls, Nfld. and a 300-foot tower would be erected as part of the TCTS circuits. In October of 1978, the contract to distribute CBC programmes to that region would be handled by Newfoundland Telephone Co., Ltd. instead of CN Telecommunications. In February of 1979, a CNR general manager confirmed that the headquarters of Terra Nova Telecommunications, Inc. would be relocated from St. John's, Nfld. to Gander, Labrador. About one week later, a Bell Canada subsidiary announced that the Labrador City telephone system had been purchased from the Iron Ore Company for \$5,700,000.

telegraph offices and the introduction of an electronic mail service¹ (Telepost).

These manoeuvres raise a number of questions. Were the CN Telecommunications facilities reorganized as a prerequisite for their sale and/or the incorporation of a joint stock company controlled by the Canadian Pacific Railway Company? Was the suit filed against Telesat Canada in order to increase CPR leverage during any negotiations on membership and/or revenue sharing? If the case were forfeited, would the other suits be imperiled and/or future recourse to the courts on this matter prevented?²

One thing seems quite certain. The *fervour* with which the courts embraced the justice department or central agency arguments on the cabinet variance³ left the way quite clear for further intervention(s). The federal Cabinet can now dispose of the application by Canadian Pacific Ltd. - after the CRtTC ruling - *in camera* and without explanation to the general public.

(b) Local/inter-urban switched system(s)

Another description of *the crisis* which came from the communications

¹"CNCp changes telegram setup to save costs," Globe and Mail, 7 April 1978, sec. 1, p. 3. Volume decline rates were: 6.5% (1965-75) and 10% (1976-78).

²Black's Law Dictionary, revised 4th ed. (1968), s.v. "Res judicata."

³Op. cit. See page 307.

department was that:¹

We are ... in the midst of a revolution brought on by the meshing together of communications and computers in ways that have transformed our traditional notions about signals, systems and carriers.

Within this context, the potential for permanent interconnection between satellite and cable distribution facilities was recently alluded to as follows:²

Crucial to the introduction of a Canadian pay television system - as it has been in the U.S. - is economical access to our domestic long haul delivery system.

If there is a viable scheme to restructure and/or rationalize facilities, systems and/or organizations which involves the federal Cabinet, upon what kind of foundation must the plan have been erected? Presumably, some sort of argument would have been defined or latched onto which could be deployed to legitimize any coercive actions and/or decrees by that managerial body on behalf of the common carriers and/or others. Based upon historical evidence, it would seem reasonable to assume that this *cornerstone* tenet(s) must be closely related to traditional *notions* and source(s) of differentiation amongst chosen instruments and/or between them and other organizations.

As mentioned in the second chapter of this case study, the federal and provincial governments have mainly relied upon two tenets in the past. The

¹B. Ostry, "Blind spot: A silent revolution vital to Canadians," Globe and Mail, 30 January 1979, sec. 1, p. 7.

NOTE: Dr. Bernard Ostry was the deputy minister of the communications department when this article was published.

²Canadian Cable Television Association, "Cable: Canada's choice for

primary one involves a division of the communication's policy field into telecommunications and electronic media segments.¹ Until the 1950s, the secondary one involved the former segment. A relatively clear separation was maintained between the *specialized* telegraph/private line system and telephone one managed by the two consortia. Since the 1950s, the growth of hybrid forms of communications (CATV and satellite communications) has steadily eroded the credibility² of the *notions* under review.

By the spring of 1979, the efforts of the federal government had failed to even maintain the levels of economic well-being³ and social harmony which were recorded in the 1960s. In general, four public policy problems have not been alleviated by massive deficits and coercive⁴ interventions. Economic growth was inadequate so the targets were lowered. Even so, inflationary pressures began to surge⁵ again after the expiry of

the 80's," p. 1.

¹Op. cit. See pages 60-1.

²"The Corporate Image: PR to the Rescue - For the company under siege, a bigger role for public relations," Business Week, 22 January 1979, special report, p. 48.

NOTE: *PR tactics can be effective only if the organization that is engaged in public controversy possesses credibility.*

³Steklasa, R. "*Living standard imperiled by our industrial weakness*," Financial Post, 9 July 1977, sec. 2, p. 22.

⁴Gray, J. "The FLQ's side of the events: October crisis viewed as Trudeau trap," Citizen, Ottawa, 25 March 1977, sec. 4, p. 62.

⁵Canadian Press, "Firms raised prices, jumped profits 21%, federal agency says," Globe and Mail, 7 February 1979, sec. 1, p. 1. The Anti-Inflation Board could control wages and prices. The Centre for the Study of Inflation and Productivity must rely upon suasion and/or publicity.

legislation which the present Administration had promised not to introduce during the campaign before the last general election. The passage of time had reduced to a handful the number of dates when the Prime Minister might prefer to call the next general election before the statutory deadline made action mandatory. The Canadian dollar vis-à-vis the American one had fallen to the lowest level since the Great Depression in the 1930s. In addition, the Bank of Canada under the direction of the finance department had spent hundreds of millions to delay or retard¹ the decline in spite of an international commitment to a floating exchange system.

By the spring of 1979, several phenomenon in the communications industry had converged to foster an aura² of sectoral *crisis* within the general politico-economic one. The importance of their confluence is that a situation may have been forged which could render public opinion susceptible to pleas for immediate public policy action,³ regardless of the long-term implications.

The four specific factors were as follows. Bell Canada had lost its exclusive franchise for the use of hydro poles beside roadways and conduits beneath municipal streets. The company had held these privileges for half

¹J. Hay, "Dollar fall could have been worse: Monetary policies defended by Bouey," Citizen, Ottawa, 6 February 1970, sec. 1, p. 1. Apparently, a senior executive at the central bank telephones the designated official at the finance department each morning for that day's instructions.

²Op. cit. See page 49.

³J. Sauvè, "Structural changes seen in broadcasting," Journal of Marketing (January 1979): 16.

NOTE: Madame Sauvè was the fourth communications minister when this article was published.

a century and had secured them after winning a case which was heard by the Judicial Committee of the Imperial Privy Council.¹ The implementation of the Canadian content policy (Bill C-54) prepared by the central agencies and approved by the federal Cabinet had produced unpleasant - perhaps even unacceptable - domestic reactions and foreign repercussions.² Pay television had finally become commercially viable, probably on account of large amounts of excess capacity on American domestic satellite communications systems.³ The communications department in conjunction with the telephone common carriers and CATV operators had begun to finance⁴ the evaluation of fibre optics: "... in order to maintain our presence in this important technology."⁵ Why did the clarion-call of the federal

¹Fetherstonbaugh, Sise, pp. 147-60.

²"Media & Advertising: A confrontation with Canada over TV ads - Washington retaliates for cutbacks in ads beamed from the U.S.," Business Week, 6 November 1978, pp. 142, 147.

³"Business Brief: The rise of American pay-TV," Economist, 29 July 1978, pp. 62-3, 68.

⁴B. Ostry, "The Mermaid Inn: The wiring of Canada: a danger, a challenge, a certainty," Globe and Mail, 9 December 1978, sec. 1, p. 5. On 28 March 1978, the department announced a \$156,000 contract award for cable development to a wholly-owned subsidiary of Noranda Mines Ltd. On 19 June 1978, it announced a \$200,000 study which would be conducted in Elie, Manitoba and whose costs would be split 50:50 with the CCTA. Later on, the program was enlarged to \$2,500,000. On 27 July 1978, Canadian Cablesystems Ltd. announced a \$200,000 two-way CATV experiment in London, Ontario. On 12 December 1978, Bell Canada announced the two-way field trial in the Yorkville District.

⁵J. Sauv, "A First for Canadian Technology," Notes for an address by communications minister at the Bell Canada inauguration, Toronto, Ontario, 19 December 1978, (Mimeographed,) p. 2.

government not include an exhortation for movement to the forefront of this innovation? Is the *crisis* under review a real one, part of an unofficial plan and/or merely an impromptu, pre-election posture? In order to find an answer to these questions and others, highlights from the public debate and private lobbying efforts on the future of community antenna television systems and the proper introduction of pay television services will now be introduced.

Back in December of 1975, an audit of the potential costs and benefits in one hundred submissions on pay television services was finished. The federal regulatory commission recommended that the introduction of this kind of service in Canada should be delayed by that body, the central agencies and/or federal Cabinet, if possible.¹ As mentioned on several previous occasions, the federal Cabinet approved the TCTS/T Agreement in principle during November of the next year. That month, the first changes in a wave of incremental adjustments were instituted at the structural interface between the telecommunications and electronic media segments.²

The fourth communications minister announced that a written agreement on CATV systems, broadcasting undertakings and pay television services had been reached with the government-owned Manitoba Telephone System (see Supplementary Exhibit G7). On the basis of this federal-provincial

¹D. Karon, "Quebec can't rule cable TV: supreme court," Citizen, Ottawa, 30 November 1977, sec. 1, p. 1. In December of 1976, the Pay Television Network was formed. The Supreme Court of Canada ruled 6-to-3 but all of the Québec justices dissented.

²B. Keddy, "CRTC seeking legal opinion on status of Ottawa - Manitoba cable accord," Globe and Mail, 23 November 1976, sec. 2, p. B1.

understanding, the Minister set aside three CRTC rulings on cable television licences for systems in that province.¹ Six months later, the federal regulatory commission announced the modification of its ownership policy on amplifiers such that from that point onwards: "... cable operators must share with other companies the use of drops."²

Another six months would pass before a ruling³ was released by the Canadian Radio-television and Telecommunications Commission which favoured Saskatchewan Telecommunications. By design or coincidence, the rendering was not reached and/or announced until after the chairman's bid to remain had been rejected.⁴ Specifically, this ruling allowed that crown company: "... to own the hardware from the street to the house, but the licensed operator must own the cable from the wall to the set."⁵

¹M. Gray, "TV in New Brunswick: the CBC's embarrassing absence," Globe and Mail, 15 February 1979, sec. 1, p. 7.

NOTE: One example of the dangers of too much political and corporate corporate interference too often in the regulatory process may be New Brunswick which is the only province without a CBC station or outlet. An \$11,000 per month private line circuit to link Fredericton, Moncton and Saint John for 30 or 60 minute news programme produced by the CBC is unused reportedly on account of financial demands by the Irving family which owns all of the important daily newspaper and the largest television station in that province.

²"CRTC alters policy in Manitoba dispute," Globe and Mail, 9 August 1977, sec. 2, p. B2.

³J. Twigg, "Saskatchewan sees CATV victory in CRTC ruling," Financial Post, 8 October 1977, sec. 1, p. 26.

⁴Canadian Press, "Bid to stay rejected says Boyle," Citizen, Ottawa, 14 September 1977, sec. 1, p. 14. The new chairman (Pierre Camu) was the CAB president and reportedly is a *team player*.

⁵Twigg, "Saskatchewan see CATV victory in CRTC ruling," p. 26.

By implication, it would apply to other telephone companies. At the very least, it would be repeatedly cited as a precedent for further grants to approved telecommunications common carriers. In this way, another subtle yet crucial policy adjustment was instituted which would permit a wide variety of structural adjustments and/or industry rationalizations. Equally important, each one could reflect or deny regional preferences.

After a provincial election resulted in the removal of the Québec Liberal Party from office, a *hue-and-cry* of separatists in Radio-Canada rose to a crescendo¹ which peaked² during the summer of 1977. In June of that year, the federal broadcasting company suggested that a special Commons committee recommend that the coverage of parliamentary proceedings should be distributed by CATV systems under the auspices of the CBC.³ That month, the federal crown company also submitted a proposal to the CRTC for a non-commercial television network (TV2) based upon a programme core of re-runs and distributed via a vacant channel on Canadian CATV systems.⁴

In February, the crown enterprise and a community antenna television association tabled briefs for consideration by the special Commons committee. The Canadian Cable Television Association proposal reportedly

¹Canadian Press, "Liberal MPs threaten to slash CBC budget," Citizen, Ottawa, 19 May 1977, sec. 1, p. 14.

²"Media bias *subversive*, CRTC finds," Globe and Mail, 21 July 1977, sec. 1, pp. 1, 2.

³Canadian Press, "Cable urged for Commons TV," p. 10.

⁴Idem, "New network urged: CBC wants overhaul," Citizen, Ottawa, 15 June 1977, sec. 3, p. 49.

consisted of:¹

✓ Three phases. The first phase is what exists now - the distribution by local cable companies of live proceedings in the national capital region, and of taped proceedings, on a delayed basis, in several other localities.

The second phase involves the use of the Department of Communications (DOC) experimental Hermes system to extend live coverage to Halifax and Dartmouth in Nova Scotia, the Trois Rivieres region in Quebec and the Toronto and Sudbury Regions in Ontario for the remainder of this session....

Phase III,.. would require DOC to set aside 30 hours a week on one of the two channels it has rented from Telesat on the new Anik-B.

The keynote item is the implicit grant of an indirect subsidy in the form of free access or reduced charges for the circuits leased by the communications department.

Four months later, these parties re-appeared before the special Commons committee. Reportedly, the Telesat proposal had been:²

Substantially revised ...

The estimated annual cost of transmitting Commons proceedings ... pared from about \$2.8-million to about \$2-million, mostly by abandoning the use of terrestrial microwave transmission to augment the service. Commons Speaker James Jerome, chairman of the committee studying the proposals, said that Telesat's projection of the cost is still *way to high, and their figures are not supported.*

By implication, Telesat Canada was also seeking indirect subsidization. Based upon the evidence presented in this case study, these

¹F. Howard, "Bureaucrats," Citizen, Ottawa, 6 February 1978, sec. 1, p. 2.

²O. Ross, "Battle for exclusive House rights develops into gamble for pay-TV," Globe and Mail, 6 June 1978, sec. 1, p. 9.

funds would merely have represented an incremental enlargement of the hundred million dollars worth of subsidies which the crown enterprise has already received (see Supplementary Exhibit 02). The Telesat request also validates a warning recorded during the debate on Bill C-184 that the federal government had a *tiger by the tail*. As mentioned in the sixth chapter, a Senator had cautioned that unless the impact of obsolescence was carefully monitored: "... we will find ourselves with another C.B.C., with unlimited financial help from the Government."¹

Was the community antenna television association being used by the federal Cabinet and/or central agencies as a *stalking horse* but against the crown enterprise and broadcasting company? This possibility is a distinct one since a spokesman for the CBC recently confirmed in a press interview that that crown company had for an unspecified period of time been:²

Negotiating with Telesat Canada to rent time on its Anik B satellite.... hopes to complete plans in time to start transmitting coverage of the current parliamentary session.

Back in June of 1978, the new CRTTC chairman and others addressed the annual convention of Canadian CATV operators. The basic message which the federal Cabinet may have wished to convey was summarized as follows:³

¹Canada, Parliament, Debates (Senate), 1st session, 28th parliament (1968-69): 1685-6.

²B. Keddy, "Cable companies caught off guard: CBC aims to put Commons on satellite," Globe and Mail, 19 January 1979, sec. 1, p. 5.

³Laws, "Industry at the crossroads: Cable TV companies aiming for satellite network," p. 5.

Coasting on a profit plateau after a decade of rapid growth, the industry is pausing at the crossroads posed by ... technological developments. But the complex relationships between cable, the rest of the broadcasting industry and the telecommunications sector render all byways to growth potential collision courses. For starters, Pierre Camu, chairman of the Canadian Radio-television and Telecommunications Commission, made it clear it's only a matter of time before cable is corralled into making payments to the creators, both domestic and foreign, of the siphoned-off programs that constitute the meat and potatoes of cable's wares.

The *corralled* allusion is quite pertinent to the questions under review in this chapter. The *siphoned-off* one also warrants further investigation.

As outlined in Appendix C, there is an historical and fundamental difference between American CATV systems and Canadian community antenna television ones. Specifically,¹

Cable began in Canada as strictly a hardware operation. A toll antenna or head-end would receive television signals and deliver them via coaxial cable to subscriber's homes.

Inherently, the Canadian operators are confronted with two problems. Their commercial viability rests upon a tenuous financial foundation and the whim of the provincial and/or federal government(s). Without an authorization to secure advertising revenues,² they must rely upon *free access* to foreign and domestic programmes in order to charge low fees and garner enough

¹Canadian Cable Television Association, "Cable: Canada's choice for the 80's," p. 11.

²"Television advertising: Boom fading?" Economist, 3 June 1978, p. 125.

subscribers.¹ The proclamation of Bill C-58 acerbated the immoral aspects of these operations and unleashed a wave of criticism. It exposed the CATV operators to: "... charges of discrimination and outright piracy."² The reverberations from these charges grew and produced others. For example, there were claims that the broadcasters³ had raised their dividends at the expense of programme production and/or were seeking to privatize⁴ their companies in order to hide their profitability and funds flows. Not too surprisingly, federal exhortations that everyone should make sacrifices to preserve national unity were also belittled by the above backlash.⁵

In September of 1978, the public debate and private lobbying efforts under review were given a new impetus and perhaps even a well-worn channel⁶

¹Op. cit. See page 68.

²G. Smith, "Broadcast," Journal of Marketing (December 1978): 3.

³G. Stevens, "Licence to print money," Globe and Mail, 12 January 1979, sec. 1, p. 6. A boardroom quarrel at Tele-Capital Ltd. of Québec City led to a rare exposure of what may be a general - in varying degrees - phenomenon throughout the broadcasting segment.

⁴Canadian Press, "Disclosure bid is criticized," Globe and Mail, 23 November 1978, sec. 2, p. B2.

NOTE: Privately-held companies whose shares are not traded on a stock exchange did not have to disclose the kinds of financial information which the CRTC argued should be released to the general public in the public interest.

⁵J. Simpson, "Overhaul of federal system to cool crisis, unity task force says," Globe and Mail, 26 January 1979, sec. 1, p. 1.

⁶Op. cit. See page 26, 28. The financial and political clout of the three companies dwarfed the one which could have been mustered by Southam Press Ltd. and Power Corporation of Canada in 1967.

to follow. Bell Canada, Southam Press Ltd.,¹ and Torstar Corporation² announced their intention to demonstrate two-way information services on a pilot plant basis.³ Telephone and television signals would be packet-switched (see Glossary) through an integrated system. All-electronic or E-phones⁴ would be necessary. Fibre optics technology would overcome the broadband restrictions inherent in twisted pairs of wires which were mentioned on several previous occasions. The British-designed (Ceefax or Prestel) videotex hardware would provide the critical electronic interface⁵ between television set, local loop or long-line circuit and computer.

In mid-November of 1978, the fourth communications minister responded to an Opposition question in the House of Commons as mentioned in the previous segment. On the one hand, the Minister denied that departmental

¹"Ticker Talk: Acquisitions - Southam Inc.," Financial Post, 17 February 1979, sec. 2, p. 20. Early in 1978, a Southam subsidiary responsible for business publications, trade and consumer shows, marketing services and audio visual units was reorganized. A year later, Southam Business Publications Ltd. was used to acquire a private information and publishing firm (Corpus Information Services Ltd. of Toronto).

²E. Clifford, "Torstar chief indicates \$150 million investment capacity," Globe and Mail, 16 December 1977, sec. 2, p. B4. The Toronto Society of Financial Analysts were told that the above sum would preferably be invested in *existing* undertakings in the broadcasting segment.

³R. Steklasa, "Communications poised for take off," Financial Post, 9 September 1978, sec. 1, p. 4.

⁴Dow Jones, "Northern Telecom to introduce electronic phones in new year," Globe and Mail, 6 June 1978, sec. 2, p. B4.

⁵"Business Brief: Three men on a Viewdata bike," p. 71.

officials had been screening candidates and recruiting members for a royal commission on communications. On the other hand, she did promise that the national pay television model would be ready between the first ministers' conference and the communications ministers' one in February and March of the new year.

Sixteen days later, an announcement was released to the press¹ which stated that an *ad hoc* group had been appointed to advise the Minister on selected communications matters. Within two weeks, the fourth communications minister had attended the Bell Canada et al inauguration in Yorkville. Exactly what kind of videotex hardware² would be used during the field trial was unclear for a couple of months. When the consortium placed their pilot project into operation in mid-February of the new year, the Northern Telecom-designed (Vista) equipment was unveiled. Apparently, these less costly converters would replace yet: "... make use of the Telidon technology."³ This Canadian-designed (Telidon) equipment had been developed by: "... a small team of DOC researchers ... working ... for 10 years, and ... on a shoe-string budget of \$1 million over the last two years."⁴

¹ Canadian Press, "Communications industry future report ordered," Citizen, Ottawa, 30 November 1978, sec. 2, p. 36.

NOTE: Two out of the original five members were the Torstar and Telesat chairmen.

² Dow Jones, "Government claims video system shows improvement over rivals," Globe and Mail, 16 August 1978, sec. 2, p. B2.

³ M. Munro, "Talk-back TV to begin pilot home, office tests," Citizen, Ottawa, 15 February 1979, sec. 4, p. 78.

⁴ Idem, "Computer-TV net unveiled," Citizen, Ottawa, 16 August 1978, sec. 1, p. 8.

The *shoe-string* reference raises several questions. Did the federal Cabinet and/or central agencies latch onto one of the few tangible - even though unrepresentative - examples of a potential return¹ from the hundreds of millions spent by the communications department? Were these r&d expenditures wasted on account of improper priorities, poor planning and/or inadequate management? Is the consultative committee merely another façade which seeks to preserve the illusion that policies come from or are being significantly influenced by the federal government rather than developed in common carrier and corporate boardrooms?

By design or chance, media coverage produced a cause célèbre and the attention of the general public was drawn to various documents. The Delta Project set was described as follows:²

The Ouimet paper is 96 pages long and has a run-on series of identifying titles that tells us much: "The Future Development of Public Telecommunications in Canada: 1976-1991," "Rationalizing Canadian Telecommunications: A Plan for Action" by Alphonse J. Ouimet; "Discussion Prepared for Plans for Action: Untangling the Canadian Telecommunications Web." When I remarked on the force, vivacity and keen argumentation of the paper to a luminary in private broadcasting, he said: *Of course Al didn't write it....* Anyway, it's a *buster* - its subject, as Ouimet puts it: *The future system architecture of Canadian communications.* Ouimet's argument can be boiled down to one phrase: separate the carriage and the content. Put a bit longer: the spread of coaxial cable in Canada and its pending successor, fibre optics, spells the approaching demise of on-air stations except to reach the fringe and scatter of Canada.

¹Op. cit. See page 311.

²D. Fisher, "Telecommunications policy: Preventing a disaster," Citizen, Ottawa, 10 January 1979, sec. 1, p. 6. J. Alphonse Ouimet was

Without a new plan, this means eclipse for the CBC and financial disaster and collapse for private broadcasting stations and networks. It spells out a national disaster as the fracturing of Canadian audiences by transplanted American channels, lures more and more cable subscribers.

The keynote words in this quotation are *untangling* and *separate*.

Two options which are not necessarily mutually exclusive were presented for consideration by the consultative committee. The one position is that: "... cable television wishes to be recognized as a third communications entity with its own distinct and largely complementary characteristics."¹ A review of the policy directives in the proposed Telecommunications Act (see Supplementary Exhibit G2) indicates that this approach may have already been rejected. The main reason is that there is no explicit provision for CATV undertakings as a distinctive system.

The other position would require a merger of cable television and existing broadcasting interests. Ostensibly, this rationalization would generate enough investment capital through economies of scale² to finance the introduction of a pay television system or services on a national basis.³ Reportedly, the common carriers did not intend to: "... take away the cable

the 70-year-old chairman of Telesat Canada at the time when this article was published.

NOTE: One month after the original inquiry, the Gamma Group offered to provide a copy of these paper(s) in exchange for the payment of \$25.

¹ Canadian Cable Television Association, "Cable: Canada's choice for the 80's," p. 2.

² M. Trueman, "Levesque blocks agreement on cable," Globe and Mail, 7 February 1979, sec. 1, p. 9.

NOTE: The federal proposal included retention of the right to allow or disallow one or more parties to develop economies of scale.

³ Canadian Telecommunications Carriers Association, "News Release," Ottawa, Ontario, 5 January 1979, (News Release,) p. 2.

TV industry's present function of collecting and packaging broadcasting signals."¹ This claim was essentially meaningless since the federal government and/or the U.S. one would probably reach a settlement or ensure² that the Canadian CATV operators would lose or be forced to pay for at least half of their off-air signal inputs. More specifically, the focal point of the common carrier argument was that:³

The essential thing is that these proposals embody entirely the principle of separation of responsibility for the medium from responsibility for the message....

cable TV should take on more of the characteristics of the broadcasting and less of those of the carrier.

Was this principle which the Bell System and the U.S. government had hammered out in the 1920s the sought-after *cornerstone* tenet?

Based upon the material presented in both segments of this chapter, it would seem reasonable to assume two things. The TCTS/T Agreement effected a transfer of *de jure* administrative control from the federal Cabinet to the continental telephone consortium. In the lexicon of the military, the TCTS/T had secured the *long-line* flank. The accompanying risk reduction now allowed these common carriers to sally forth on the *local/inter-urban switched system* flank in order to re-capture an exclusive grant of those commercial prerogatives.

¹Stevens, "Broadcasting cross-ownership," Globe and Mail, 6 January 1979, sec. 2, p. B3.

²P. Calamai, "Move by U.S. border stations could start trade war," Citizen, Ottawa, 29 August 1978, sec. 1, p. 16.

³Canadian Telecommunications Carriers Association, "Submission to the Consultative Committee," p. 4.

(c) Summary

The focal point of the conflict between the continental telephone consortium and the domestic telegraph one remains data exchange services. The primary reason is that:¹

The next generation of satellites will ... be more flexible in terms of application to new services and could provide for new approaches to the provision of private line services, business communications, data transmission and broadcast distribution services.

What the coalition members of the crown enterprise have really been considering for the past decade is the conversion of the *Canadian family communication system*. In the future, it will rely upon the burgeoning growth of data exchange revenues and a business constituency rather than telephone revenues and a subscriber one(s). Any structural adjustments will parallel the *orderly* replacement of existing facilities with E-phones, computerized packet switching units, digital signals and perhaps automatic end-user route selection. The provision of telephone service will become an ancillary function of the TCTS/T system or a new one in the same way that public telegram service has been an ancillary function of the railway company(s) in this country ever since the late 1880s.

Each of the main contributors to Telesat Canada exploited a fundamental weakness in the other party. On the one hand, the common carriers utilized

¹Letter of Intervention from the Attorney General of British Columbia to the Canadian Radio-television and Telecommunications Commission, Victoria, B.C., 4 April 1977, (Mimeographed,) p. 13. The next generation referred to in this quotation is the Anik IIs.

the lack of cabinet will and power to resist their continuous lobbying efforts over a decade and a half. On the other hand, the federal Cabinet obtained one concession in the form of a conditional veto over new system planning and revenue sharing outputs by the TCTS Board of Management. Given that repeated use of the veto could stifle innovation, flexibility and social mobility in this policy field, probably means that it will be used very sparingly. At best, the federal Cabinet achieved a *Pyrrhic* victory (see Supplementary Exhibit T2) in a single sector of the economy at a cost of about five hundred million dollars to Canadian taxpayers, telephone subscribers and every kind of consumer.

3. Alternate Rationale for the Transfer of Administrative Control

Based upon the evidence presented thus far, the assumption that the TCTS/T Agreement enabled a shift of *de jure* administrative control from the federal cabinet to the continental telephone consortium seems quite valid. Three options which are not necessarily mutually exclusive emerge from the analyses in this chapter as the most likely explanations for the transfer. The first one is that the nucleus for a *secret* plan or grand design was formed in the mid-1960s. This scheme was based upon a hundred-year-old premise and it contained three imperatives. There must be a single chosen instrument (see Exhibit 5). It must only consist of approved telecommunications common carriers. It must be organized in order to protect the status quo and guide the commercial adoption of the

hybrid forms of communication, i.e. community antenna television and satellite communications.

Given the provisions in the Telesat Canada Act of 1968-69 for an exchange of earth station sites for common shares and the testimony of the Canadian banking executive about underwriter expectations, there is a distinct possibility that there was another facet to the *grand design*. Part of the original scheme may have been to discreetly transfer administrative and/or policy-making control over Telesat Canada to the common carriers during the distribution of common shares to the general public.¹ Lobbying pressure by *outsider* interest group(s) and/or the minority government situation of a few years ago may have prevented or delayed the execution of this facet.

Denial of access to certain documents prepared by or for the Privy Council Office and the corporate veil of secrecy guarded by every common carrier precluded a continuation of the search for more substantive evidence about the first alternative. The above veil and the official secrets statute(s) also prevented access to material which would have provided the answer to a question which appeared over and over again

¹ Bell Canada, "Proposed Offering of Common Shares," Financial Post, 27 January 1979, sec. 1, p. 4 and "Additional Shares," Globe and Mail, 15 February 1979, sec. 2, p. B4.

NOTE: One-third of these shares were acquired by financial institutions even though the offer was lauded in the press as the first direct-to-the-public issue since 1922 and the telephone subscribers would pay the \$8,500,000 in underwriter commissions. By 10:30 a.m. on 16 February 1979, all of these shares had been taken. A Wood Gundy representative in Ottawa suggested that a copy of the prospectus may not have been received even though the coupon was mailed in as directed because the document dated 12 February 1979 had only just been printed.

throughout the analyses in this case study. Why did the first communications minister resign without public protest about two things? The one was the Telesat stock subscription in advance of the signing of the service agreements. The other was the increase in and prolongement of the subsidization requirements beyond the original estimates and probably over the economic lifetime of the 6/4 GHz facilities.

The second option and explanation is that the transfer of administrative control occurred on a cyclical or relatively random and incremental basis. The main causative factors were two-fold. There was uncertainty about the direction and rate of development for several technologies including *wave-guide* innovations. Errors did happen since individual and organizational knowledge, competence and behaviour are neither infinite, omnipotent, nor always consistent. The third option is that there was a raw exercise of power. Under these conditions, the transfer of administrative control was facilitated by a significant weakening of public policy leverage. This loss was prompted by the reduction in media and general public attention which accompanied the change of venue from *public* to *in camera* forums.

What conclusions and observations can be drawn from the evidence accumulated thus far in this dissertation?

PART IV

TELESAT CANADA AND MIXED ENTERPRISES

CHAPTER 10: CONCLUSIONS AND OBSERVATIONS

Chapter Ten sets out to accomplish several things. A summary assessment of the strengths and weaknesses of the theoretical approaches used in this case study will be recorded. The final determination of the validity of the central hypothesis will be presented along with various criticisms, predictions and recommendations.

Three questions guided the research for and the preparation of this thesis. In general, why did the federal Cabinet seek to reorganize the Canadian communications policy field between 1964 and 1978? In particular, why did the federal Cabinet accept the Privy Council Office's recommendation that a mixed enterprise should be used for the domestic adoption of satellite communications and how has the mixed enterprise evolved in practice? More substantively, why were three Anik-1 satellites with twelve R.F. channels purchased even though the federal Cabinet probably had been advised by the Science Secretariat and PCO Task Force on Satellites that only one spacecraft with three R.F. channels could be operated on a commercial basis?

The chapter is divided into five sections: the utility of the theoretical approaches, the central hypothesis, the 1964-78 reorganization, the utility of the mixed enterprise mode, and the Canadian space program.

1. Utility of the Theoretical Approaches

The hypothesis was not generated nor could it have been assessed with any single body of theory. It was necessary to borrow somewhat eclectically from works in a number of different fields ranging from political science to business administration. The original outline of this dissertation relied upon an examination of the selection of a single batch (Anik 1s) of satellites. The historical findings uncovered during the research program and the cabinet approval of the membership agreement prompted one major modification. Instead of a single *snap-shot* of Telesat Canada, it was decided to look at the organizational behaviour of the crown enterprise over a ten-year-period. This change proved to be a fortuitous one for two reasons. Different perspectives in each chapter could be used to peel off successive layers of necessary but distracting information. At the same time, the critical factors and parameters for the final determination of the validity of the central hypothesis could be exposed.

The principle strength of the Dahl and Lindblom continuum is that it highlights the change of venue and values which accompanied the conversion of Telesat Canada from one form of organization to another. The agency crown corporation is the mode traditionally used in the public sector when the functional emphasis is on the procurement of goods or services. The mixed enterprise mode was purely transitional. It was used to create a façade or illusion. The reason is that it seems to embody the prerequisite *spirit* of public-private sector sharing and to honour the ministerial commitment to tripartite ownership. The associate company mode reflects the

often used concept of a single chosen instrument in order to leave routine policy-making and administrative matters concerning a specific territory in the hands of the dominant forum or organization. The principal weakness of the Dahl and Lindblom continuum is that it can neither properly accommodate the complexities of a confederated nation-state nor adequately provide a category for an unincorporated consortium.

The examination of four procurements and five bid solicitations confirmed that the Telesat decision-making process was essentially incremental in nature. The Anik I and CTS-1 choice ignored two safeguards - signing of the service agreements before the stock subscription and reliance upon a genuine mixed enterprise - which had been touted by the first communications minister. The net result was a series of costly malfunctions and mistakes which pushed the federal Cabinet and central agencies along a one-way path. More importantly, it progressively weakened public policy leverage and foreshortened ministerial options.

The Musolf typology postulates a trilogy of reasons for government intervention in the form of a mixed enterprise. These prerequisites are: private firms in financial difficulties, private firms unable to raise venture capital and/or a need to deter foreign competition. The first two reasons can be rejected since there was a lack of common carrier inclination rather than resources. The third reason emerges by the process of elimination as the most plausible one except that the repatriation policy was not applied to the telecommunications segment of this policy field.

The distinction in the Musolf work between the right to appoint directors to the board of a mixed enterprise and to approve capital

expenditures was the crucial one. It highlighted the possibility that different parties could be responsible for policy outputs and day-to-day administration. His observations on the transient nature of the mixed enterprise drew attention to the importance of examining organizational behaviour over as long a period of time as possible. From there, it was a short leap to the parameters postulated at the end of the second chapter.

The Cyert and March model of an organizational decision-making process has an internal emphasis which is incompatible with the lack of managerial independence in the case of Telesat Canada. After two years of reflection and trial, it was realized that their original focal point, i.e. goal development, expectation formation and execution of choices, was the key feature. These factors were introduced to the thesis in the form of chapter headings which provided a simple yet effective way to accomplish two things. Any shift in the locus of control could be traced and highlighted. The host of questions, evidence and information about the central issue of the status quo versus productive system planning could be sorted and presented in an orderly manner. In this way, it became possible to ascertain what kind of control was being exercised by which party(s) and under what circumstances.

In retrospect, there was one other noteworthy observation. An ideological approach to the case study was rejected on the general grounds that it would be less useful than certain others. The Marxist approach was set aside on the specific grounds that it is not well suited to handle technological change and the central issue. Its use would have entailed

5

a prediction that the notion of a mixed enterprise would succumb to other values. Since this prediction coincides with the findings in the ninth chapter, it seems to support their general presumptions about the state and private enterprise though not the specific forms and processes through which their common interests are achieved.

2. Central Hypothesis

The central hypothesis of this dissertation is that there is a low probability of direct public-private sector control being shared on an equal basis, of influence being matched, and of value(s) or premise(s) being significantly blended among the Telesat management in lieu of the general public, the federal Cabinet and the approved telecommunications common carriers. Two sets of criteria with three factors in each were postulated as an appropriate means to test the validity of this hypothesis. One set was conceptual and structural in that it involved an assessment of effective majority ownership, the roles envisaged, and policy-making control. The other set was more operational in that it involved productive system planning, allocation of satellite and/or earth station ownership, and administrative control. The two sets of criteria facilitated the distinction between formal authority or *de jure* control and the actual exercise of power or *de facto* control.

The fact that duplicate space systems were procured further showed that the need for any substantive blending of divergent value(s) or premise(s) was avoided. Collaterally, the ICTS/T Agreement confirmed the existence of an

effective transfer of *de jure* administrative control. The dependence of the Telesat management on the amount of subsidization provided for in the service agreements with the telephone common carriers increased with each successive failure to install a system which fully integrated space and terrestrial facilities.

The evidence presented in this thesis and the balance of probabilities suggest that the central hypothesis is generally valid. It therefore contradicts the assertions below which were made during a Senate hearing on Bill C-184. The first communications minister testified that:¹

In the bill - and I will be very frank with honourable senators here - there are two clauses, one of which provides that the Government can invest up to \$30 million in equity, and another which says that the Government can invest up to \$40 million in debt. In fact, what we are doing there is reserving for ourselves an ultimate bargaining position with the telephone companies and the public. I will tell you the reasoning behind that. Suppose the telephone companies had come to us and said: *We will invest in your new satellite organization only on condition that we own it 100 per cent outright ourselves, or only on condition that you sell all the capacity of the satellite to us.* Then, by this bill, honourable senators, we would have been able to say to them: *Well, if you are going to adopt that attitude the Government, cannot accept you having a complete monopoly on all space communications. The Government, rather than permitting a perfect monopoly in this situation, will go ahead and do it itself.* In other words, it is a bargaining position.

The full evidence for support of the hypothesis can be seen in relation to the evolving phases of the 1964-78 reorganization, the utility of the mixed enterprise mode, and the subsequent key facility choices.

¹Canada, Senate, Standing Committee on Transport and Communications, Proceeding No. 10, p. 157.

3. 1964-78 Reorganization

The reorganization was an integral part of a series of interventions by the federal Cabinet to clarify jurisdictional boundaries and to test its managerial powers during a period of rapid but perhaps unnecessary technological change. The reorganization process included a variety of adjustments. The status of the Canadian Overseas Telecommunication Corporation was revised from Government of Canada representative to recognized operating agency. The INTELSAT investment was allowed to deteriorate into a *token* commitment which probably will result in the loss of the seat on the INTELSAT board. Telesat Canada was set up as an agency crown corporation, reorganized momentarily as a mixed enterprise then temporarily as a crown enterprise, and finally converted to an associate company of the continental telephone consortium. The existing regulatory statutes were amended one-by-one then consolidated in the proposed Telecommunications Act which has so far been introduced three times.

The most plausible explanation for the incremental nature of these adjustments and the change of venue from public to *in camera* forums is that the federal Cabinet probably believed that a better deal could be struck with the provincial governments and special interest groups without public scrutiny of each bargaining phase. The actual impact of its reorganization tactics on freedom of information and cabinet accountability generates criticisms which tower above the rest. Quite simply, the federal Cabinet and its central agencies failed to provide articulate parties in this country with adequate information at the proper time. Access to a handful

of crucial studies was denied until after the first batch of satellites had been purchased. Without this information, the parties mentioned on the previous page could neither participate in any meaningful way nor ensure accountability to the general public. Some of the specific actions which contributed to this situation are outlined below.

The studies commissioned by the transport and industry departments were declared *confidential*. These *in-house* documents were neither tabled nor requested by the Commons standing committee which heard testimony about and reported on Bill C-184. They were not released to the general public until years after the operational adoption choice had been instituted. Consequently, a penetrating parliamentary and public debate was impossible. The MacIntosh Report and other PCO documents remain *secret*. The format, content, omissions and changes in the annual reports of the crown enterprise and/or the communications department made performance and comparative analyses difficult for knowledgeable persons and impossible for the average taxpayer, telephone subscriber and consumer. A situation was fostered whereby the parliamentary committees, media and others were lulled into a false sense of security. Each party presumed that accountability had been satisfactorily guaranteed by the legal rights which would accompany the repeatedly promised; *always imminent* issue of common shares to the general public.

If the domestic adoption of satellite communications as outlined in this thesis is typical of future cabinet behaviour, then there is cause for concern. If the failure of the Auditor-General to examine the CTS-1 Project is included, there is also cause for concern about the productiveness of the

communications department. If the failure of the House of Commons and the Public Accounts Committee to investigate the Telesat annual reports even though the crown enterprise reported a working capital deficit for three consecutive years is added, then there is cause for alarm.

Based upon the evidence compiled in this dissertation, the important policy outputs and system planning choices probably were made *in camera* either before or after the parliamentary review and debate on Bill C-184. In addition, a meaningful review of the entire communications policy field has never been completed by a body with an explicit mandate, adequate resources and direct accountability to the general public. The last parliamentary attempt was made over seventy years ago by the Select Committee on Telephone Systems¹ which tabled neither conclusions nor recommendations. Consequently, the decision-making process and institutional framework will increasingly be treated with mistrust - perhaps even contempt - by Canadian taxpayers, telephone subscribers and consumers.

The conclusions and observations presented in this thesis strengthen the notion that the 1964-78 reorganization was little more than a *smoke screen* to mask the weakness of the federal bargaining position.

4. Utility of the Mixed Enterprise Mode

Why did the federal Cabinet accept the Privy Council Office's recommendation that a mixed enterprise should be used for the domestic

¹Canada, Parliament, Select Committee on Telephone Systems, Minutes of Proceedings and Evidence, Catalogue No. 17958 (Ottawa: Queen's Printer, 1905).

adoption of satellite communications and how has the mixed enterprise evolved in practice? As mentioned in the first chapter, the suggestion that the mixed enterprise was the proper mode for the domestic adoption of satellite communications was woven into the proposal by Niagara Television Limited, Power Corporation of Canada Ltd., and RCA Victor Limited. The exact reason(s) is unclear since the stock subscription formulae would have, in effect, reduced the NTV and CANSAT companies to subsidiaries of one or more holding company(s).

According to the official rationale, Telesat Canada was organized as a composite enterprise and a mainstay for the domestic adoption of satellite communications. The first communications minister argued against organization as a proprietary crown corporation on numerous occasions. During the first Commons standing committee hearing on Bill C-184, he stressed that:¹

Our concern is the public good, in all its aspects....
By bringing in the public as shareholders we will,
as I explained ensure that hidden costs are not
sloughed off on to the taxpayer.

During the next to last hearing, he emphasized that a mixed enterprise was the preferable mode on the grounds of efficiency alone. His plea was based upon the assumption that in a proprietary crown corporation: "... there is a tendency ... that once a project is on its way it has to be completed at any cost."²

¹ Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Proceeding No. 29, p. 1475.

² Idem, Proceeding No. 41, pp. 2130-1.

By implication, the second argument on the previous page was an even stronger one against the use of an agency crown corporation or reliance upon a department. For the first eighteen months, Telesat Canada in effect functioned as an agency crown corporation of the federal Cabinet and/or the communications department. The Anik I contract was awarded just before the conversion to a composite enterprise or more accurately a crown enterprise. The purchase agreement provided for such a large block of excess capacity that the commercial viability of the domestic satellite communication system was crippled during the economic lifetime of the first batch of key facilities.

The *letter of the law* rather than the *spirit of the enabling act* was invoked on several occasions, probably to accomplish two things. Certain outputs from the central agencies could be legitimized. The uncovering of the exact time and manner in which the commercial adoption of satellite communications was made subservient to special interests could be delayed or prevented. At best, the comments by the Telesat management and the reply of the corporate counsel to the interventions and interrogatories were too legalistic and too circumspect. At worst, these statements mislead the general public. The real implications of the TCTS/T Agreement are that Telesat Canada's primary *raison d'être* is guardian of the conditional veto and that its primary responsibilities will become the station-keeping duties.

The tone and thrust of the general submission to the federal regulatory commission on the corporate rationale, motives and alternatives was based upon a convenient but false premise. It is that Telesat Canada should be regarded as a private and independent company rather than treated as an agency crown corporation then a crown enterprise and now an associate

company of the continental telephone consortium. Relative to these forms, Telesat Canada was a mixed enterprise for only a brief period. Consequently, it seems likely that the federal Cabinet never intended for it to function in that manner. What risks and dangers did this posture entail? The federal Cabinet was not required to seek inputs from Parliament or the passage of statutory amendments in order to institute these changes. On the single occasion when the federal Cabinet did return to a public forum, it set aside the ruling of the regulatory commission without giving reason(s).

Given a weak central government with less power than its regional opponent(s) and with less will than the common carriers, a mixed enterprise should never again be incorporated under a special Dominion charter. In the event that such an action was justified by the existence of destructive competition, certain safeguards should be included. A set of goals which would be monitored by a designated and independent agency must have been clearly and explicitly stated in the enabling act. Provision must also have been made in the charter for the tabling of a detailed and official plan for the implementation of these goals along with the annual report.

The federal Cabinet should display the courage of its convictions. It should declare that there will not be an issue of Telesat common shares to the general public and that the existing one will be transferred to a new chairman who is an eligible person but a neutral party. The Telesat board should pass a by-law(s) which specifies that the president must attend board meetings and that he or she shall be the corporate representative on the TCTS Board of Management. The evidence compiled in this case study suggests that the Telesat directors may have been so remiss

in their duties that legal action is warranted. The lack of locus standi may render this course of action unfeasible unless the courts accept the argument that the special eligible person held his single share on behalf of the general public.

What concession(s) or return(s) other than the conditional veto did the federal bargainers obtain from the half-billion dollars spent during the domestic adoption of satellite communications?

5. Canadian Space Program

Throughout this study, the primary objective was to ascertain whether or not the central hypothesis was valid. The secondary and closely related goal is to gauge what kind of compromise was reached in regard to the central issue of stability or status quo versus economic and resource development or productive system planning. Using the findings presented thus far, the third question might better be re-phrased as follows. Why did the federal Cabinet and/or the first communications minister permit the procurement of three flight spacecraft with a novel design yet a capacity which still exceeded domestic requirements during the 1970s and perhaps even the 1980s?

There are two important aspects to this question which primarily focuses on the cabinet rejection of commercial viability for the 6/4 GHz facilities without a declaration of their experimental/prototype nature. When the federal Cabinet condoned multiple-access to the first generation of operational spacecraft, two other things were inevitable. Profitability was no longer exposed to the full force of the marketplace. Indeed, it

became a function primarily of the contractual provisions in the membership, and/or service agreements between the *main contributors*. The number of R.F. channels or 6/4 GHz spacecraft in orbit became irrelevant since *state of the art* innovations could have pushed the potential capacity of the system well beyond the latest estimate of Canadian requirements in the 1970s. In the light of these two findings, the other aspect of the question under review can be seen much more clearly. The procurement of the Anik Is probably was the crucial pivot point that determined which party(s) won, which one(s) lost, what benefits were accrued and what opportunities were lost forever.

The advent of community antenna television and satellite communications threatened existing divisions of constitutional authority, the commercial interests of some of the largest institutions in Canada and the private prerogatives of a few families. The operational adoption edict and a decade of expenditures under the rubric of a Canadian space program seemed to raise the political stakes into a win or lose situation. In spite of the resultant pot-pourri, several conclusions and observations stand out quite clearly.

Special interests seem to have been given priority over national well-being. The Anik fleet of spacecraft occupies a set of *adjacent* geostationary orbits and guards the optimum space window for Canada. Using hindsight, there have been a number of ironical twists. Contrary to the claims of senior federal officials, it does not appear to have been necessary to rush into space, to forge the space window, to secure too many frequency bands on two occasions or to rely upon *blue sky* bargaining

tactics which could expose Canada's international reputation to a re-run of the Zenith incident.¹

As mentioned in the second chapter, major technological developments only occur on an episodic basis. Each one generates an opportunity to foster real competition in order to introduce a couple of fundamental changes. Structural adjustments can be instituted in order to strengthen the economy and benefit the general welfare. Some of the more inefficient encrustations on existing revenue sharing arrangements can be chipped off. The problem is that unilateral control over any given key facility, i.e. trunk line or local switched system, is the market condition traditionally insisted upon by the approved telecommunications common carriers.

A space system which was exclusively designed for the distribution of national, regional, community antenna, commercial and/or educational television programmes was not installed during the decade under review. This omission discarded an opportunity to make a significant contribution towards the socio-cultural integrity which the Prime Minister claimed was so essential that it constituted an all-party goal. This omission not only failed to lessen the acerbity of the economic problems which plague this country but may have had quite the opposite effect. Duplicate space systems and triplicate terrestrial trans-Canada circuits have been condoned. A two-or-more phase plan for the full integration of space and terrestrial systems has not yet been revealed or implemented. Another country(s) is moving into the forefront of direct-to-home broadcasting by satellite.

¹ MacLaurin, Invention and Innovation, pp. 131-59. In February of 1926, a radio station in Chicago operated by the Zenith Radio Corporation appropriated a vacant wavelength. It had been left unoccupied ever since a bilateral agreement between the federal and U.S. governments had reserved

Certain ameliorative steps seem advisable for the restoration of credence to the judicial notion of cabinet accountability and the traditional one of ministerial responsibility. The Auditor General of Canada should conduct an extensive investigation of the Alouette-ISIS program, the CTS-1 project and the Anik procurements. His office should then table a report in the House of Commons on the productiveness of these expenditures and the possibility of wasteful utilization of scarce resources. The Canadian Radio-television and Telecommunications Commission should conduct a detailed examination of the impact of the Anik purchases on inflationary pressures, in general, and telephone subscriber fees, in particular.

Two scenarios of the future course along which the commercial adoption of satellite communications will be guided are as follows. There is a remote possibility that the Anik IBs will be designed primarily for television distribution and that the common carriers will abandon satellite technology as too risky once their fibre optic equipment can function reliably in long-line trunk circuits. There is a distinct possibility that the third generation of key facilities will have a design configuration which matches or closely resembles the 1966 Bell System proposal to the Federal Communications Commission.

Three conclusions about the central issue emerge from the findings in this case study. The compromise reached by the Telesat management, the federal Cabinet and the approved telecommunications common carriers seems to have favoured the *status quo*. By implication, the federal Cabinet

a number of channels for Canadian usage.

probably never intended to promote either a world-scale space industry or the production of direct-to-home broadcasting satellite(s) for export and/or domestic use. The Canadian r&d expenditures on satellite communications never did acquire the status of a *major prototype program*.

The crucial touchstone for the 1964-78 reorganization, the deployment of the mixed enterprise mode and the expenditures on the Canadian space program is the federal claim to an exclusive constitutional right: "... to make Laws for the Peace, Order and good Government of Canada."¹ As long as there was little overt conflict (*peace*) and the status quo (*order*) was maintained, the federal Cabinet found it expedient to incorrectly assume that everything had been well managed (*good government*).

¹Canada, Department of Justice, *NA Acts*, p. 24.

GLOSSARY

Applied research: is an original investigation in order to gain new scientific knowledge. It is directed primarily toward a specific aim or objective

Broadband: is a bandwidth greater than voice bandwidth. Currently, a range of bandwidths up to 4 MHz can be provided

Broadband services: are for the transmission of radio signals for audio broadcast of radio and television programmes and for the transmission of video signals for television programmes

Broadcasting: includes all those radiocommunications in which the transmissions are intended for direct reception by the general public

Carrier's carrier: is a telecommunications distribution organization which rents *paths* to a common carrier. For example, the Bell Northern #2 radio frequency channel which Bell Canada leases under the provisions of a service agreement with Telesat Canada

Carriers' carrier: is a telecommunications distribution organization which rents *paths* under the provisions of a single contract to two or more common carriers. One example was the pooling arrangement between Telesat Canada and Trans-Canada Telephone System - CN/CP Telecommunications. Another example is the service and membership agreements between Telesat Canada and Trans-Canada Telephone System members

Common carrier: is any company that offers telecommunication distribution services and paths-for-hire to the public, organizations or other parties

Computer communications: involves telecommunications between terminals and computers and between computers and computers

Community antenna or cable television (CATV): is a system which links together, via coaxial cable, a large number of television sets to receive television signals through a common antenna or antennae

Direct control: is always a direct relationship between two or more human beings. B is controlled by A to the extent that B's responses are dependent on A's acts in an immediate and direct functional relationship

Exchange or central switching office: routes the signal to the desired receiving terminal of another subscriber in the network

Free basic research: is an original investigation which is undertaken in order to gain new scientific knowledge and understanding without relationship to a practical aim or application

Geostationary orbit: is one in which a satellite appears to be stationary from any point on the Earth even though its velocity is about six thousand nine hundred statute miles per hour. In such an orbit, a satellite passes around the Earth in approximately twenty-four hours corresponding to the rotation of the Earth. A synchronous satellite must have an average altitude above the Earth of approximately twenty-two thousand statute miles

Innovation: consists of two phases. Invention involves research, development, design and testing activities. Innovation-proper is concerned with making, selling or gaining-acceptance of a new or improved product or with the adoption of a new or improved method or process

Intermodulation: is interference between radio frequency channels that are going through a single transponder

Ionosphere: is one of four distinct layers which make up the earth's atmosphere. These layers are: troposphere (0-10 miles), stratosphere (11-30 miles), ionosphere (31-300 miles), and magnetosphere (301-2,000 miles). The ionosphere contains electrically charged particles and molecules. It is the region where aurora displays occur

Message/record service: involves terminal-to-terminal transmission of messages with no computer processing of data between terminals, e.g. Telex and TWX

Microwaves: are radio waves which have a wavelength between approximately twenty centimetres and one centimetre

Oriented basic research: is an original investigation which is undertaken in order to gain new scientific knowledge because of an apparent lack of basic knowledge in some fields, which is holding up, or may hold up, the pursuit of some mission

Pegasus: was the winged horse of Bellerophon which had sprung from the blood of Medusa. A blow from its hoofs caused the fountain Hippocrene, sacred to the Muses, to flow on Mt. Helicon

Peripheral equipment: is a terminal device for sending and/or receiving electrical or light impulses

Private line voice service: involves leased circuits for voice services which are not included in the public telephone service

Radio frequency (R.F.) channel: is a separate microwave channel through the satellite which amplifies the signal transmitted from the ground, converts that signal into the satellite transmit frequency and re-transmits the signal to the ground after further amplification

Route diversity: is the protection measure used to adequately separate long-haul communication routes so that the failure of any one route does not result in the total interruption of service in that part of the country involved

Sector: is properly defined in terms of demand cross elasticities. If the price of one service declines, any other service that experiences a substantial decline in demand is said to be directly competitive, and therefore, part of the same industry

Space segment: is all of those aspects of any given system which are concerned with the creation, launching and control of the satellite

Space window: is an arc along the geostationary orbital pathway wherein communications satellite(s) can be located in order to efficiently reach every part of a given territory or country

Stakeholder: is a group of individuals or organizations which have a legitimate interest in the determination of the behaviour of the organization in question. Each one has somewhat different expectations for the organization which are related to their own goals and interests. Coalition members are an inclusive group with voting and/or investment power rather than only influence over organizational policy, practice and output

Strategy: is a timed, sequence of conditional moves to achieve a pre-determined and/or agreed upon set of objectives, goals or policy guidelines

Sun transit: occurs when an earth station and its satellite are in direct line with the Sun. Noise is introduced into the circuits operating via the system

Telemetry: is a unit in the satellite which radios information concerning the operational conditions aboard the satellite

Transponder: is a combination of receiver, amplifier and transmitter in one unit aboard the satellite

Viewdata: is the generic term for any wired service displaying printed text on television

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SUPPLEMENTARY EXHIBIT A1

FIVE TYPES OF ORGANIZATIONAL GOALS

Type	Referent	Examples
SOCIETAL	Society in general	Produce goods and services; maintain order; generate and maintain cultural values
OUTPUT	The public in contact with the organization. This category deals with types of output defined in terms of consumer functions	Consumer goods; business services
SYSTEM	The state or manner of functioning of the organization, independent of the goods or service it produces or its derives goals	The emphasis upon growth, stability, profits, or upon modes of functioning such as being tightly or loosely controlled or structured
PRODUCT	The characteristics of the goods or services produced	An emphasis upon quality or quantity, variety, styling, availability, uniqueness, or innovativeness of the product
DERIVED	The uses to which the organization puts the power it generates in pursuit of other goals	Political aims, community services

SOURCE: C. Perrow, Organizational Analysis: A Sociological View, Behavioral Science in Industry Series, V.H. Vroom, ed. (Belmont, Calif.: Wadsworth, 1970), pp. 135-6.

SUPPLEMENTARY EXHIBIT B1

TRANS-CANADA TELEPHONE SYSTEM (TCTS) MEMBERSHIP*

Organization	Cost of Plant \$000,000	Percentage# of Total
The Bell Telephone Company of Canada* and its subsidiaries-	3,904.6	68.5
New Brunswick Telephone Co., Ltd.*	171.2	
Newfoundland Telephone Co., Ltd.*	62.5	
and its associate company-		
Maritime Telegraph and Telephone Co., Ltd.* and its subsidiary-	188.0	
Island Telephone Co., Ltd.*	18.1	
General Telephone & Electronics Corporation of Danvers, Mass. through its holding company-		13.5
Anglo-Canadian Telephone Co., Ltd. of Montreal and one of its subsidiaries-		
British Columbia Telephone Company*	718.2	
Alberta Government Telephones*	547.1	8.5
Saskatchewan Telecommunications*	229.2	3.6
Manitoba Telephone System*	297.0	4.6

figures do not add up to 100 per cent since a number of traffic operations have been omitted

SOURCE: Canada, Statistics Canada, "Telephone Statistics," Preliminary Report on Large Telephone Systems: 1970, Catalogue No. 56-202, Ottawa, Ontario, November 1971.

SUPPLEMENTARY EXHIBIT C1

RADIO SPECTRUM

Use	Number of Television Channels	Frequency Band	Frequency Range
Aeronautical, marine, broad- casting satellites and high capacity digital data	45,000	extremely high (EHF)	30 - 300 GHz GHz
Communications satellites and terrestrial microwave systems	4,500	super high (SHF)	3 - 30 GHz GHz
Television broadcasting, land mobiles, and low capacity satellites	450	ultra high (UHF)	300 - 3 MHz GHz
Television and FM broad- casting, land and aeronautical mobile	45	very high (VHF)	30 - 300 MHz MHz
International radio broad- casting, amateur wireless, maritime and aeronautical mobile and General Radio Service	4	high (HF)	3 - 30 MHz MHz
Maritime and aeronautical mobile and AM broadcasting	0.5	medium (MF)	300 - 3 kHz MHz
Maritime mobile and radio navigation	0.05	low (LF)	30 - 300 kHz kHz
Navigation and shipping	0.0033	very low (VLF)	10 - 30 kHz kHz

SOURCE: Canada, Department of Communications, "The Radio Spectrum,"
Ottawa, Ontario, 1976, (Brochure,) pp. 12-3.

SUPPLEMENTARY EXHIBIT D1
EXAMPLES OF COMMON CARRIER DESIGNATIONS

Schedule I

Alberta Government Telephones
Bell Canada
British Columbia Telephone Company
Canadian National Railway Company
Canadian Pacific Railway Company
The Island Telephone Company, Limited
The Manitoba Telephone System
Maritime Telegraph and Telephone
Company, Limited
The New Brunswick Telephone
Company, Limited
Newfoundland Telephone Company,
Limited

Ontario Northland Transportation
Commission
Québec-Téléphone
Saskatchewan Telecommunications

Appendix A

Alberta Government Telephones
Bell Canada
British Columbia Telephone Company
Canadian National Railway Company
Canadian Pacific Ltd.
The Island Telephone Company, Limited
Manitoba Telephone System
Maritime Telegraph and Telephone
Company, Limited
The New Brunswick Telephone
Company, Limited
Newfoundland Telephone Company,
Limited
Northern Telephone Limited
Okanagan Telephone Limited
Ontario Northland Communications
Québec-Téléphone
Saskatchewan Telecommunications
Télébec-Ltée
Teleglobe Canada

SOURCES: Canada, Laws, Statutes, etc., Telesat Canada Act, R.S.C. 1968-69, c. 51, s. 1, p. 26 and Idem, Telesat Canada et al, "Memorandum of Understanding," Ottawa, Ontario, 31 December 1976, (Mimeographed,) p. 16.

SUPPLEMENTARY EXHIBIT D2
COMPARISON OF MEMBERSHIPS AND MANDATES
TRANS-CANADA TELEPHONE SYSTEM IN 1932

Membership	Mandate
British Columbia Telephone Company	to protect telephone investment
Alberta Government Telephones	to establish uniformity of construction, maintenance, operation and accounting
Saskatchewan Department of Telegraphs, Telephones and Railways	to disseminate useful information
Manitoba Government Telephones	to cultivate cordial relations and to do all things necessary to systematize, unify and render efficient telephone service in the Dominion of Canada
Bell Canada	
New Brunswick Telephone Co., Ltd.	
Maritime Telegraph and Telephone Co., Ltd.	

CANADIAN TELECOMMUNICATIONS CARRIERS ASSOCIATION IN 1979

Membership	Mandate
Approved telecommunications common carriers listed in Supplementary Exhibit B1 or D1	to foster and promote the development of communications in all its forms
Telesat Canada	to encourage the study and the provision of complete telecommunications services to meet business and social needs within Canada and between Canada and the rest of the world
Teleglobe Canada	to develop and co-ordinate views and policies effecting the telecommunications industry on a national basis

cont'd

Membership

Mandate

to represent and protect the common interests of the members

to co-ordinate relations between members, governments and their agents and generally to do all things necessary and proper to encourage and promote customs, practices, research and development which will strengthen and maintain the Canadian telecommunications industry to the end that it may best serve the public

SOURCES: S. Bonneville, "The Trans-Canada Telephone System," Bell Telephone Quarterly 11 (January 1932): 231 and Canadian Telecommunications Carriers Association, "Submission to the Consultative Committee on the Implications of Telecommunications for Canadian Sovereignty," Ottawa, Ontario, 5 January 1979, (Printed,) p. 1.

SUPPLEMENTARY EXHIBIT E1

MODEL OF A FULLY-INTEGRATED TELECOMMUNICATIONS COMMON CARRIER

SOURCE: J.A.R. Brothers, ed., Canadian Telecommunications' Profile; a handbook of facts, events and choices from 1720 to 1976 (Ottawa: By the Editor, 144d Woodridge Crescent, 1976.) 325 pp.

SUPPLEMENTARY EXHIBIT E2

THE BELL SYSTEM IN 1938

SOURCES: H. Coon, American Tel & Tel: The Story of a Great Monopoly (New York: Longman's, Green, 1938) and R.C. Fetherstonbaugh, Charles Fleetwood Sise: 1834-1918 (Montreal: Gazette, 1944).

BELL CANADA (1971)

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SOURCE: Canada, Department of Communications, History of Regulation and Current Regulatory Setting, Telecommission Study 1(b) (Ottawa: Information Canada, 1971), pp. 30-9.

SUPPLEMENTARY EXHIBIT E4

BRITISH COLUMBIA TELEPHONE COMPANY (1971)

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    Q[Québec-Téléphone] --- J1
    AC[Anglo-Canadian Telephone Co., Ltd.] --- J1
    J1 --- GTE[General Telephone & Electronics Corp.]
    S[sylvania Electric Canada Ltd.] --- J2(( ))
    AE[Automatic Electric (Canada) Ltd.] --- J2
    LE[Lenkurt Electric Company of Canada] --- J2
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SOURCE: Canada, Department of Communications, History of Regulation, pp. 62-8.

SUPPLEMENTARY EXHIBIT F1

TELESAT CANADA MANDATE

5(1) The objects of the company are to establish telecommunication systems providing, on a commercial basis, telecommunication services between locations in Canada.

(2) The company shall utilize to the extent practicable and consistent with its commercial nature, Canadian research, design and industrial personnel, technology and facilities in research and development connected with its satellite telecommunication systems and in the design and construction of the system.

6(1) The company, in carrying out the objects set out in this charter, may exercise any or all of the following powers, namely;

- (a) the power to design, construct, operate and maintain satellite telecommunication systems;
- (b) the power subject to section 9, to negotiate and to enter into, under the direction of the Minister, suitable arrangements for the launching of satellites;
- (c) the power to enter into contracts on such terms and conditions as it considers reasonable for the provision of telecommunication services by satellite between locations in Canada;
- (d) the power to conduct research and developmental work in all matters relating to telecommunication by satellite;
- (e) the powers set out in subsection 16(1) of the *Canada Corporations Act*, except those mentioned in paragraphs 16(1)(b.1), (c) and (r) of that Act;
- (f) the power to enter into arrangements, other than amalgamation arrangements, for sharing profits, union of interests, cooperation, joint adventure, reciprocal concession or otherwise with any other company, firm or person as provided by paragraph 16(1)(b.1) of the *Canada Corporations Act*;

cont'd

(g) the power, with the approval of the Governor in Council on the recommendation of the Minister, to take, or otherwise acquire and hold, shares, debentures or other securities of any other company having objects altogether or in part similar to those of the company, or carrying on any business capable of being conducted so as, directly or indirectly, to benefit the company, and to sell or otherwise deal with the same;

(h) the power, subject to this Act, to issue and allot fully paid-up shares of the company in payment or part payment for any property purchased or otherwise acquired by the company or any services rendered to the company;

(i) the power to carry out all or any of the objects of the company and to do all or any of the things authorized pursuant to paragraphs (a) and (b) of this subsection as principal, agent, contractor or otherwise, and either alone or in conjunction with others; and

(j) the power to do all such other things as are incidental or conducive to the attainment of the objects and the exercise of the powers of the company.

SOURCE: Canada, Laws, Statutes, etc., Telesat Canada Act, R.S.C. 1968-69, c. 51, s. 1 (Ottawa: Information Canada, 1972), pp. 3-5.

SUPPLEMENTARY EXHIBIT G1
DEPARTMENT OF COMMUNICATIONS MANDATE

4 The duties, powers and functions of the Minister of Communications extend to and include all matters over which the Parliament of Canada has jurisdiction, not by law assigned to any other department, branch or agency of the Government of Canada, relating to

- (a) telecommunications; and
- (b) the development and utilization generally of communication undertakings, facilities, systems and services for Canada.

5(1) The Minister of Communications, in exercising his powers and carrying out his duties and functions under section 4, shall

- (a) coordinate, promote and recommend national policies and programs with respect to communication services for Canada, including the Canada Post Office;
- (b) promote the establishment, development and efficiency of communication systems and facilities for Canada;
- (c) assist Canadian communication systems and facilities to adjust to changing domestic and international conditions;
- (d) plan and coordinate telecommunication services for departments, branches and agencies of the Government of Canada;
- (e) compile and keep up to date detailed information in respect of communication systems and facilities and of trends and developments in Canada and abroad relating to communication matters; and
- (f) take such action as may be necessary to secure, by international regulation or otherwise, the rights of Canada in communication matters.

SOURCE: Canada, Laws, Statutes, etc., Department of Communications Act, R.S.C. 1968-69, c. 28, s. 7 (Ottawa: Queen's Printer, 1970), pp. 1-2.

SUPPLEMENTARY EXHIBIT G2

BILL C-24: TELECOMMUNICATION POLICY FOR CANADA

3 It is hereby declared that

- (a) efficient telecommunication systems are essential to the sovereignty and integrity of Canada, and telecommunication services and production resources should be developed and administered so as to safeguard, enrich and strengthen the cultural, political, social and economic fabric of Canada;
- (b) the radio frequency spectrum is public property that should be administered in the public interest and in accordance with international agreements and conventions to which Canada is a party;
- (c) all Canadians are entitled, subject to technological and economic limitations, to reliable telecommunication services making the best use of all available modes, resources and facilities, taking into account regional and provincial needs and priorities;
- (d) telecommunication links within and among all parts of Canada should be strengthened, and Canadian facilities should be used to the greatest extent feasible for the carriage of telecommunications within Canada and between Canada and other countries;
- (e) broadcasting undertakings in Canada make use of radio frequencies and such undertakings constitute a single system, herein referred to as the Canadian broadcasting system, comprising public and private elements, which should be effectively owned and controlled by Canadians;
- (f) the programming provided by the Canadian broadcasting system should be varied and comprehensive, should provide reasonable, balanced opportunity for the expression of differing views on matters of public concern and should reflect the diversity of Canadian cultural and social values;
- (g) the programming provided by each broadcasting undertaking should be of high standard, using predominantly Canadian creative and other resources;
- (h) all persons licensed to carry on broadcasting undertakings have a responsibility for the programming they provide but the right to freedom of expression and the

right of individuals to receive programming, subject only to generally applicable statutes and regulations, is unquestioned;

(i) the fees charged by broadcasting receiving undertakings should be equitable having regard to the responsibilities of such undertakings as part of the Canadian broadcasting system;

(j) all Canadians are entitled to broadcasting service in both official languages as public funds become available;

(k) there should be provided, by a corporation established by the Parliament of Canada for the purpose, a national broadcasting service that is predominantly Canadian in content and character and that should

(i) be a balanced service of information, enlightenment and entertainment for people of different ages, interests and tastes covering the whole range of programming in fair proportion,

(ii) extend to all parts of Canada as public funds become available,

(iii) use both official languages, serving the special needs of geographic regions and actively contributing to the flow and exchange of cultural and regional information and entertainment, and

(iv) contribute to the development of national unity and provide for a continuing expression of Canadian identity;

(l) where any conflict arises between the objectives of the national broadcasting service and the interests of private elements of the Canadian broadcasting system, it should be resolved in the public interest but paramount consideration should be given to the objectives of the national broadcasting service;

(m) facilities should, if requested by provincial authorities, be provided within the Canadian broadcasting system for educational programming;

(n) telecommunications systems and services in Canada, other than the broadcasting undertakings referred to in paragraph (e), should be effectively subject to Canadian control through ownership or regulation;

(o) the rates charged by telecommunication carriers for telecommunication facilities and services should be just and reasonable and should not unduly discriminate against any person or group;

- (p) innovation and research in all aspects of telecommunication should be promoted in order to improve Canadian telecommunication systems and to strengthen the Canadian industries engaged in the production of broadcast programming and the manufacture of telecommunication systems and equipment; and
- (q) the regulation of all aspects of telecommunication in Canada should be flexible and readily adaptable to cultural, social and economic change and to scientific and technological advances, and should ensure a proper balance between the interests of the public at large and the legitimate revenue requirements of the telecommunication industry;

and that the telecommunication policy for Canada enunciated in this section can best be achieved by providing for the regulation of the Canadian broadcasting system and of telecommunication undertakings over which the Parliament of Canada has legislative authority by a single independent public body.

SOURCE: Canada, Department of Communications, Bill C-24: An Act respecting telecommunications in Canada (Ottawa: Queen's Printer, 1978), pp. 5-7.

SUPPLEMENTARY EXHIBIT G3

CONSULTATIVE COMMITTEE ON THE IMPLICATIONS OF TELECOMMUNICATIONS FOR
CANADIAN SOVEREIGNTY (CLYNE COMMITTEE): TERMS OF REFERENCE

The Committee will be asked to make recommendations on the future of the Canadian telecommunications system in relation to new technologies and the need for Canadian software and hardware resources to meet foreign competition, with particular reference to the role of broadcasting in contributing to the preservation of the sovereignty of Canada, including:

- (a) the use of communications satellites to the best advantage of Canada;
- (b) the importation of foreign programming;
- (c) the status of the cable companies in relation to broadcasting and to the common carriers in the provision of new services;
- (d) the framework and timing for the introduction of pay-television nationally.

The Committee is expected to approach its work, bearing in mind the current mixture of Canadian attitudes toward government intervention, regulation and public expenditure. And, while recognizing the interests of both federal and provincial administrations in the subject matter, the Committee will not deal with constitutional matters of jurisdiction, since the First Ministers have agreed to examine this particular issue.

SOURCE: Canada, Department of Communications, Information Services Branch, "Independent Committee to Recommend on the Future of Telecommunications in Canada," Ottawa, Ontario, 30 November 1978, (News Release,) Attached Sheets, pp. 2-3.

SUPPLEMENTARY EXHIBIT G4

FEDERAL DRAFT PROPOSAL DISCUSSED BY FIRST MINISTERS

1. In each province the legislature may make laws in relation to cable distribution within the province, including the reception and redistribution of broadcast signals; Parliament may also make laws in relation thereto for each of the provinces.
2. Any law enacted by the legislature of a province pursuant to section 1 shall prevail to the extent of the inconsistency over any law of Parliament enacted thereunder except in relation to Canadian content, Canadian broadcast programs and services, and technical standards, in which case any law of Parliament shall prevail to the extent of the inconsistency.
3. The Government of Canada shall consult the government of the province concerned before Parliament makes a law in relation to cable distribution within that province pursuant to section 1.
4. Telecommunications undertakings coming under the jurisdiction of Parliament as well as those coming under the jurisdiction of the legislature of a province and engaging in activities coming under section 1 other than as carriers shall be subject, in so far as such activities are concerned, to the laws enacted under section 1.
5. Except where otherwise expressly provided in sections 1 to 4, nothing therein shall derogate from the legislative powers that Parliament and the legislatures of the provinces had immediately before the coming into force of these sections.

SOURCE: Canada, Conference Secretariat, "Federal Draft Proposals Discussed by First Ministers: 1. Communications 2. Offshore Resources 3. Charter of Rights." Document 800-010/037. Tabled during the Federal - Provincial Conference of First Ministers on the Constitution. 5-6 February 1979, Ottawa, Ontario, (Mimeographed.)

SUPPLEMENTARY EXHIBIT G5

FINDINGS OF THE REVIEW

1. A selective extension of the present radio licensing policies for earth stations used with Telesat Canada's satellite systems will foster increased utilization of the satellites and improved telecommunication services while adequately protecting the technical integrity, and preserving the effective management and financial position of the satellite system.
2. The delivery of program signals for broadcasters and cable television licensees offers the greatest potential for a major increase in satellite utilization. It also promises to significantly expand and extend the viewing and listening choices of Canadians; especially those in areas of low population density. Non-Telesat ownership of earth stations to receive these program signals emerges as a major motivating factor for this use of Canadian satellites.
3. The ownership of TVROs by broadcasting undertakings is not, however, a sufficient condition in itself. Attention must also be given to the factors that would lead to an appropriate selection of program signals on the satellite for reception and use by earth station licensees.
4. Telecommunication carriers, other than Telesat, are readily identified as major users and potential users of the Canadian satellite for which a change in the radio licensing policy for earth stations has been suggested. Not all carriers believe any change is required and, on the basis of available information, it appears that little advantage would be gained, either in terms of satellite utilization or service improvements, by terrestrial telecommunication carrier ownership of earth stations in the present 4-6 GHz system.
5. It also appears, however, that there might be some benefits to be realized thru a policy that would permit the licensing of telecommunication carriers for transmit/receive earth stations in the new 12/14 GHz system. Such a policy would allow carriers to take maximum advantage of the flexibility in earth station siting which is an important characteristic of the ANIK C system.
6. Although some of the briefs addressed the matter of licensing private earth stations to end-users other than broadcasting undertakings, it did not emerge as a major policy issue at this time. It was noted, furthermore, that the subject could raise other policy

issues which are beyond the scope of this review. There are, however, very reasonable proposals put forward for the licensing of "end-users" in unique and special circumstances where Telesat ownership may be impractical. Earth stations employed in remote offshore locations would be such a circumstance.

7. Diversified ownership of parts of the earth segment of the satellite system will modify some constraints on the future planning by Telesat to improve satellite efficiency and to introduce new technology or services into its system.

8. An opportunity exists for Canadian manufacturers in the new market which would be opened by a change in licensing policy. On the basis of the briefs, it would appear that Canada has the industrial capability to meet this market.

SOURCE: Canada, Department of Communications, "A Radio Licensing Policy for Satellite Earth Stations Operating With the Canadian Satellite System," Ottawa, Ontario, February 1979, (Brochure.)

SUPPLEMENTARY EXHIBIT G6

SELECTED PORTIONS OF THE MINISTER'S WRITTEN STATEMENT

It will now be possible for broadcasting undertakings and telecommunication carriers to apply for radio licences for television receive-only earth stations (TVRO) for signals transmitted by Canadian satellites. Applicants will, however, have to meet a number of conditions including approval of the originator of the program signal which is transmitted by Telesat Canada and receipt of all required authorizations for the use of the signals from the CRTC.

The new policy will also permit recognized telecommunication carriers to apply for licences to operate earth stations in conjunction with Telesat's new 12/14 GHz Anik system scheduled for service in 1981.

In announcing this aspect of the policy, I have decided against a similar change for the existing 4/6 GHz system as there was little evidence that such a change would significantly increase carrier utilization of those satellites or result in improved service to subscribers. It is also recognized that this nationwide system was already well established under full Telesat ownership and management. It would, however, be reasonable to expect that the policy with respect to terrestrial carrier ownership of 4/6 GHz earth stations could be reviewed later, in light of experience gained with licensing 12/14 GHz earth stations.

Looking into the future, it would appear that the planned 12/14 GHz ANIK system will offer additional service opportunities which could be better exploited by telecommunication carriers if they could own earth stations....

Throughout the review process, the stimulus which privately-owned TVRO earth stations would provide to utilization of the Anik satellites has been a major consideration. It was recognized that a policy permitting wider ownership would not, in itself, lead to an adequate source of signals and to the fullest use of satellites to the benefit of Canadians. Because U.S. satellites now carry a significant number of such signals, and that number is likely to increase, considerable interest has been expressed in the reception in Canada of program signals from U.S. satellites. However, I would emphasize that the new policy retains the principle of not granting licences to earth stations for the reception of signals from U.S. satellites.

SOURCE: Canada, Department of Communications, "Statement by Minister of Communications Jeanne Sauvé on the New Policy for Licensing Satellite Earth Stations," Ottawa, Ontario, 27 February 1979, (Printed,) pp. 1-3.

SUPPLEMENTARY EXHIBIT G7

AGREEMENT BETWEEN THE FEDERAL AND MANITOBA GOVERNMENTS
- 10 NOVEMBER 1976 -

PREAMBLE

WHEREAS Canada has responsibility for regulating and supervising all aspects of the Canadian broadcasting system;

AND WHEREAS the Province has responsibility for regulating and supervising common carrier services provided through its agency, the Manitoba Telephone System, or other agencies of a similar character subject to the regulatory and supervisory authority of the Province (any such agency hereinafter referred to as the Agency);

AND WHEREAS the Canadian broadcasting system comprises a single system which includes broadcasting receiving undertakings that make use of the facilities and apparatus owned or under the control of the Agency;

AND WHEREAS facilities and apparatus owned or under the control of the Agency that are or may be used by the Agency to provide common carrier services may also be used by broadcasting receiving undertakings in Manitoba;

AND WHEREAS it is desirable that Canada and the Province commonly agree as to the rights and obligations of broadcasting receiving undertakings and the Agency respecting their joint use of facilities and apparatus owned or under the control of the Agency for the purposes of each providing their separate services to the public in Manitoba;

AND WHEREAS it is agreed that this Agreement is made without prejudice to the position of the parties as to their respective responsibilities at any time after the termination of this Agreement;

NOW THEREFORE Canada and the Province mutually agree and undertake that:

ARTICLE I - INTERPRETATION

FOR purposes of this agreement

"authorized" means licensed or otherwise authorized by Canada;

"Canada" includes any agency designated by Canada to exercise authority on its behalf;

"distribution" includes transmission and/or carriage;

"facilities and apparatus of the Agency" means facilities and/or apparatus owned or under the control of the Agency;

"programming service" or "programming" means audio and/or visual matter, or the provision thereof, where such matter is directed to the public by means of telecommunication facilities and where such matter is designed to inform, enlighten or entertain, or is similar in nature, character or substance to matter normally provided by television or radio broadcasting and may reasonably be expected to have an impact on the achievement of the objectives of the Canadian broadcasting system. For greater clarity and without limiting the generality of the foregoing, programming services include broadcast programming, pay television programming, local or community programming, but do not include point-to-point services, teleconferencing, or teleshopping services;

"signal modification" means quality improvement or waveform modification prior to distribution or by means of the facilities and apparatus of the Agency, or any change in the information content, of the signal.

ARTICLE II - PROGRAMMING SERVICES

THE regulation and supervision of programming services, including programming services distributed in Manitoba over or by means of facilities or apparatus of the Agency, are exclusive responsibilities of Canada.

ARTICLE III - OTHER SERVICES

THE regulation and supervision of telecommunication services, other than programming services, distributed in Manitoba by means of facilities and apparatus of the Agency are exclusive responsibilities of the Province.

ARTICLE IV - RADIOCOMMUNICATION

NOTWITHSTANDING the provisions of Article III, the orderly development and operation of radiocommunication in Canada remains the responsibility of Canada.

ARTICLE V - CABLE-CARRIER HARDWARE ARRANGEMENTS

FOR the purpose of providing authorized programming services to the public, a broadcasting receiving undertaking may lease from the Agency all necessary facilities and apparatus excluding signal modification and studio equipment, channel modulators and the antenna and headend of a broadcasting receiving undertaking, the terms and conditions under which the Agency provides such

facilities and apparatus being agreed between the Agency and the undertaking in accordance with applicable statutory provisions.

ARTICLE VI - ADJUDICATION OF DISPUTES

IN the event of a dispute as to terms, conditions or rates affecting the use of facilities and apparatus of the Agency for the purposes of providing authorized programming services, the Province undertakes to take the necessary measures to ensure that such dispute will be adjudicated by its competent regulatory authority in order to ensure that such terms, conditions or rates are just, reasonable, and in the public interest.

ARTICLE VII - TECHNICAL STANDARDS

THE enactment and/or application of minimum technical standards in regard to facilities and apparatus used for the provision of programming services remains the responsibility of Canada.

ARTICLE VIII - CHANNEL CAPACITY AND PRIORITY

THE Province undertakes to take the necessary measures to ensure that the Agency will readily make available sufficient telecommunications capacity to permit the distribution of all authorized programming services which make use of the facilities and apparatus of the Agency; it being understood that distribution of programming services has priority over the distribution of other services with regard to the use of such facilities and apparatus.

ARTICLE IX - EXTENSION OF SERVICES

WHILE the determination of the timing and conditions for the introduction of programming services into the various localities in Manitoba remains the responsibility of Canada, Canada and the Province undertake to cooperate with a view to ensuring the orderly provision of programming and other services in Manitoba which make common use of the facilities and apparatus of the Agency.

ARTICLE X - EXCLUSIVITY

THE Province undertakes to take the necessary measures to ensure that the Agency will permit use of its facilities and apparatus for the distribution of programming services only by undertakings, entities, or individuals authorized by Canada.

ARTICLE XI - REVIEW AND AMENDMENT

THE provisions of this agreement shall be subject to joint review at the request of either party, and may be amended at any time by mutual agreement.

ARTICLE XII - TERMINATION

THIS agreement may be terminated by either party upon one year's notice.

SOURCE: Bilateral Agreement Between the Government of Canada and the Manitoba Government, Signed by the federal Minister of Communications and the Manitoba Minister of Consumer, Corporate and Internal Services, Ottawa, Ontario, 10 November 1976, (Mimeographed.)

SUPPLEMENTARY EXHIBIT H1

CANADIAN OVERSEAS TELECOMMUNICATION CORPORATION (COTC)

- TELEGLOBE CANADA MANDATE

7 The Corporation is established for the following purposes:

- (a) to establish, maintain and operate in Canada and elsewhere external telecommunication services for the conduct of public communications;
- (b) to carry on the business of public communications by cable, radiotelegraph, radio-telephone or any other means of telecommunication between Canada and any other place;
- (c) to make use of all developments in cable and radio transmission or reception for external telecommunication purposes as related to public communication services;
- (d) to conduct investigations and researches with the object of improving the efficiency of telecommunication services generally; and
- (e) to coordinate Canada's external telecommunication services with the telecommunication services of other nations.

9(1) Subject to subsection (2), the Corporation may do such things as it deems expedient for or conducive to the attainment of the purposes set forth in section 7, and may carry on its business in Canada and outside of Canada, without restricting the generality of the foregoing, the Corporation may

- (a) buy, sell, lease contract, acquire, hold and dispose of real and personal property of every description; and
- (b) enter into agreements and arrangements with any government, corporation, board, person or other body operating communication services for the interchange of messages, pooling of interests, division of tolls and revenues, sharing of expenses and generally in furtherance of the business of the Corporation.

cont'd

9(2) On the recommendation of the Treasury Board, the Governor in Council may by regulation prescribe limits to

- (a) the amount that may be expended by the Corporation under any agreement or lease, or
- (b) the value of any real or personal property that may be acquired or disposed of by the Corporation in any transaction,

and unless the approval of the Governor in Council is first obtained, the Corporation shall not exceed, with respect to the transactions referred to in paragraphs (a) and (b), the limits prescribed pursuant to this subsection.

SOURCE: Canada, Laws, Statutes, etc., Canadian Overseas Telecommunication Corporation Act, R.S.C. 1949, c. 42, s. 1. (Ottawa: Queen's Printer, 1970), pp. 2, 5.

SUPPLEMENTARY EXHIBIT H2

SELECTED COTC FINANCIAL DATA (1950-78)

Year	\$'000			
	Income From Operations	Operating Expenses	Operating Profit	Net Profit
1950	1,021	700	321	87
1951	1,666	1,448	218	196
1952	1,568	1,355	224	82
1953	1,574	1,388	186	24
1954	1,630	1,435	195	108
1955				
1956	2,166	1,798	369	217
1957	2,827	2,149	678	416
1958	4,230	3,221	1,009	631
1959	4,773	3,582	1,191	626
1960	5,778	3,892	1,886	948
1961	7,274	4,578	2,696	1,364
1962	9,484	6,067	3,324	1,665
1963	12,321	8,226	3,978	2,008
1964	14,278	9,527	4,751	2,386
1965	15,355	10,932	4,422	2,221
1966	17,968	12,867	5,100	2,561
1967	21,213	14,133	7,079	3,550
1968	24,502	16,541	7,961	3,991
1969				
1970	30,500	18,512	6,195	5,793
1971	33,155	20,553	12,602	6,132
1972	33,582	22,573	11,009	5,355

cont'd

\$'000

Year	Income From Operations	Operating Expenses	Operating Profit	Net Profit
1973	44,418	31,009	18,145	9,940
1974	44,797	37,495	19,820	10,158
1975	61,086	51,708	21,961	10,797
1976	65,862	62,979	24,517	13,061
1977	73,408	58,042	28,240	14,877
1978	72,844	60,106	28,150	14,489

SOURCE: Canada, Canadian Overseas Telecommunication Corporation,
Annual Reports 1950-74 (Montreal: COTG, 1951-75) and Idem, Teleglobe Canada
Annual Reports 1975-78 (Montreal: Teleglobe, 1976-79):

SUPPLEMENTARY EXHIBIT H3
COST OF CIRCUITS LEASED BY COTC

Year	\$ '000
1967	2,279
1968	2,621
1969	2,993
1970	4,209
1971	5,995
1972	6,517
1973	5,899
1974	6,157
1975	9,543
1976	10,704
1977	4,047
1978	3,556

SOURCE: Canada, Canadian Overseas Telecommunication Corporation,
Annual Reports 1967-74 (Montreal: COTC, 1968-75) and Idem, Teleglobe
Canada, Annual Reports 1975-78 (Montreal: Teleglobe, 1976-79).

SUPPLEMENTARY EXHIBIT I1

SELECTED SECTIONS FROM THE RAILWAY ACT OF 1903

320(1) In this section *company* means a railway company or person authorized ~~to~~ construct or operate a railway, having authority to construct or operate a telegraph or telephone system or line, ...
and telephone companies and every company and person within the legislative authority of the Parliament of Canada having power to construct or operate a telegraph or telephone system

Special Act means any Act under which the company has authority to construct or operate a telegraph or telephone system.

320(5) The Commission may, from time to time upon application, deal with all questions of unreasonableness or unjust discrimination ...

320(11) All contracts, agreements and arrangements between the Company ... or of any other systems or lines operated in connection with them or either of them, are subject to the approval of the Commission, and shall be submitted to and approved by the Commission before such contract, agreement or arrangement had any force or effect.

320(12) ... the jurisdiction and powers of the Commission, ... extend and apply to all companies as in this section defined.

321(4) The Commission may

- (a) Suspend or postpone any tariff of tolls or any portion thereof ...
- (b) disallow any tariff or any portion thereof ...

SOURCE: Canada; Laws, Statutes, etc., Railway Act, R.S.C. 1903, (Ottawa: Information Canada, 1971), pp.

SUPPLEMENTARY EXHIBIT J1
SOURCES & APPLICATIONS* OF TELESAT FUNDS

Item	1969	1970	1971	1972	1973	1974	1975	1976	1977
SOURCES:									
Common shares		19	31	10					
Advances	10								
Loans				12	14				4
Operations					13	20	23	22	25
Working Capital				14		2	1	3	
Grants				1					
Deferred Revenue									9
APPLICATIONS:									
Satellite system development, etc.	3	4	2	2		3			
Construction in progress		2	28	3					
Property				32	19	11	12	18	23
Working Capital	7	3	1		3				13
Long-term debt					5	8	11	6	1
Repayment of advances		10							
Dividends							1	1	1

* The figures have been rounded to the nearest millions of dollars

SOURCE: Canada, Telesat Canada, Annual Reports 1969-77 (Ottawa: Telesat, 1970-78).

SUPPLEMENTARY EXHIBIT J2
TELESAT WORKING CAPITAL (1970-77)

Year	Beginning	End	Variance
1970	6,799,017	9,398,656	2,599,639
1971	9,423,930	10,208,407	784,477
1972	10,208,407	(3,791,893)	(14,000,300)
1973	(3,792,000)	(1,066,000)*	2,726,000
1974	(832,000)*	(2,687,000)*	1,855,000
1975	(1,814,000)*	(2,826,000)	1,012,000
1976	(2,826,000)	(6,195,000)	3,369,000
1977	(6,195,000)	7,108,000	13,303,000

* Adjustments resulted from a change in satellite depreciation policy

SOURCE: Canada, Telesat Canada, Annual Reports 1970-77 (Ottawa: Telesat, 1971-78).

SUPPLEMENTARY EXHIBIT J3
TELESAT CASH LEVELS AT YEAR'S END (1969-70)

Year	\$ Amount
1969	47,409
1970	194,367
1971	124,745
1972	312,425
1973	129,000
1974	79,000
1975	187,000
1976	3,688,000
1977	8,790,000

SOURCE: Op. cit.

SUPPLEMENTARY EXHIBIT J4

RATE OF RETURN CALCULATIONS FOR TELESAT CANADA,
EXCLUDING CUMULATIVE LOSSES (1969-77)

Year	\$'000		Net Earnings per Shareholders' Equity (%)
	Shareholders' Equity	Net Earnings	
1969			
1970	19,030		
1971	50,000		
1972	60,000		
1973	65,341	1,689	2.6
1974	69,127	3,786	5.5
1975	71,372	3,519	4.9
1976	73,142	2,370	3.2
1977	77,706	4,522	5.8

SOURCE: Canada, Telesat Canada, "Rate of Return Calculations,"
Ottawa, Ontario, 16 May 1977, (Mimeographed.) Submitted to the Canadian
Radio-television and Telecommunications Commission in response to
interrogatories about the TCTS/T Agreement.

SUPPLEMENTARY EXHIBIT K1
SELECTED CLAUSES ON FINANCIAL ARRANGEMENTS
- TCTS/T AGREEMENT OF 1976

17(b) For the years 1977, 1978, 1979 and 1980 TCTS shall through settlement arrangements ... provide Telesat with an after tax rate of return on that portion of its common equity ... reasonably allocable to the provision of services by TCTS and the services covered by Part A, paragraphs 13 and 14 hereof, of 6%, 7%, 8% and 9% respectively.

18. Should Telesat's operating revenues, as defined in paragraph 19(a) hereunder, less its operating expenses, as defined in paragraph 19(b) hereunder, result in any fiscal year in an after tax rate of return on its common equity in excess of the minimum rate of return on common equity as defined in paragraph 17 hereof, the amount in excess of this minimum rate of return will be shared on the basis of 50% Telesat, 50% TCTS/T.

21. An increase in the outstanding shares issued by Telesat shall constitute an act requiring the renegotiation of the settlement arrangements set out in Part B.

22. Subject to Paragraph 25 hereof the laws in force in the Province of Ontario shall apply to this Agreement. In the event of any dispute arising under Part B, paragraphs 17 to 21 inclusive of this Agreement, either the Party of the First Part or the Parties of the Second Part may request in writing that it be settled by arbitration.

SOURCE: Telesat Canada et al, "Memorandum of Understanding," 31 December 1976, Ottawa, Ontario, (Mimeographed,) pp. 8, 10.

SUPPLEMENTARY EXHIBIT K2

SELECTED CLAUSES ON KEY FACILITIES

- TCTS/T AGREEMENT OF 1976

5. Telesat shall design, procure, implement, own and operate a communication satellite system consisting of the space segment and earth station....

6(c) The communication satellite system designs shall be the responsibility of Telesat and these designs shall be compatible with economic and performance requirements and with service plans as established by TCTS. Subject to statutory requirements, the overall systems design and capital costs of the communication satellite system, except as provided in Part C hereof, as it relates to TCTS requirements will be subject to the approval of all TCTS members.

(d) Telesat shall in a timely manner exchange through its participation in the TCTS Functional Committees, satellite design concepts and other information to fully support TCTS planning activities and ensure optimum use of satellite facilities in the TCTS network....

7. Subject to the provisions of Part A, paragraphs 12 and 13, earth stations will be located at sites designated by TCTS/T and acceptable to Telesat and shall consist of antennas and other equipment which carry the telecommunication signals and which interface with terrestrial systems at designated points within the earth station shelter. These interface points shall be located so as to avoid any duplication of equipment and provide optimum implementation and testing procedures to common telecommunications industry standards and to fulfill statutory requirements. In the event that these statutory requirements change in the future and Telesat offers to sell the earth stations, TCTS/T members shall have option and first claim to purchase and own such earth stations.

8. TCTS/T members may at their option, and thereby have the first claim to design, procure and maintain the support facilities and services for earth stations established after the date of this Agreement in their recognized serving territory and described in Part C, paragraph 23(d).

SOURCE: Telesat Canada et al, "Memorandum of Understanding," Ottawa, Ontario, 31 December 1976, (Mimeographed,) pp. 3-4.

SUPPLEMENTARY EXHIBIT K3

TELECOM DECISION CRTC 77-10

2. The Commission's basic jurisdiction under s. 320(11) of the Railway Act is limited to that of approving or withholding approval of agreements submitted under that section. The criterion ... is the public interest, viewed in a broad sense. In a case of this type, both applicants and interveners bear an onus to demonstrate where the public interest lies.

3. The Commission divided what it considered to be the appropriate public interest considerations into two broad categories. The first category embraced certain regulatory issues ... The second category embraced a number of questions of general public policy.

4. In regard to the first regulatory issue, the Commission concluded that approval of the Agreement would compound the difficulties of identifying the costs and economics of satellite facilities offered to the public, would create obvious problems for effective intervention in Telesat rate cases, and would significantly reduce incentives to efficiency which normally arise in rate proceedings....

5. Approval of the Agreement would also raise a substantial likelihood of undue preference to TCTS and would significantly prejudice the capacity of the Commission to adjudicate complaints of unjust discrimination under the Railway Act....

6. While the Commission is prepared in this case to rest its decision on the regulatory issues alone, it has also given considerable weight to public policy issues raised in this case. These included the effect of the Agreement on the powers and autonomy of Telesat under the Telesat Canada Act, on the availability and expansion of satellite services in Canada, and on competition in telecommunications services.

7. In regard to the first matter, the Commission concluded that while the Agreement was not illegal under the Telesat Canada Act, the erosion of Telesat's decision-making capacity which would be caused by the Agreement would not be consistent with the intent of the statute to create an independent autonomous corporation providing satellite services on a commercial basis.

cont'd

8. With respect to satellite services via Anik A satellites employing 6/4 GHz technology, the evidence indicated that these would continue to be offered with or without Telesat membership in TCTS. In respect to the 14/12 GHz satellite system proposed, the Commission does not wish to substitute its judgement for that of others more qualified ... As to whether the Agreement was necessary to achieve the proposed system, the evidence was not conclusive.

9. The Commission also concluded that competition policy was an appropriate public interest concern ... the Commission concluded that there were grounds for concern that a potentially competitive situation in the long-haul data and video or other private line services would be restricted by the Agreement, in a manner that does not appear to be justified.

SOURCE: Canada, Canadian Radio-television and Telecommunications Commission, "Decision," Ottawa, Ontario, 24 August 1977, Telecom Decision CRTC 77-10, (Mimeographed.)

SUPPLEMENTARY EXHIBIT L1

LAUNCH DATES OF COMMERCIAL COMMUNICATIONS SATELLITES (1965-77)

Date	Canada	USA	International
06/04/65			Intelsat I
26/10/66			Intelsat II-F-1
11/01/67			Intelsat II-F-2
22/03/67			Intelsat II-F-3
27/09/67			Intelsat II-F-4
18/12/68			Intelsat III-F-2
05/02/69			Intelsat III-F-3
21/05/69			Intelsat III-F-4
14/01/70			Intelsat III-F-6
08/05/70			Intelsat III-F-7
25/01/71			Intelsat IV-F-2
19/12/71			Intelsat IV-F-3
22/01/72			Intelsat IV-F-4
13/06/72			Intelsat IV-F-5
09/11/72	Anik I-F-1		
20/04/73	Anik I-F-2		
23/08/73			Intelsat IV-F-7
13/04/74		Westar I-F-1	
10/10/74		Westar I-F-2	
21/11/74			Intelsat IV-F-8
07/05/75	Anik I-F-3		
22/05/75			Intelsat IV-F-1
25/09/75			Intelsat IVA-F-1
13/12/75		Satcom I-F-1	
29/01/76			Intelsat IVA-F-2
19/02/76			Marisat I-F-1
26/03/76		Satcom I-F-2	
13/05/76		Comstar I-F-1	
10/06/76			Marisat I-F-2
22/07/76		Comstar I-F-2	
14/10/76			Marisat I-F-3
26/05/77			Intelsat IVA-F-4

SOURCE: United States, National Aeronautics and Space Administration, Goddard Space Flight Center, "Satellite Situation," Greenbelt, Maryland, 31 December 1977, (Computer Printout.).

SUPPLEMENTARY EXHIBIT L2

INITIAL SATELLITE LOCATIONS RELATIVE TO THE CANADIAN SPACE WINDOW

Operator	Flight Spacecraft	Degrees West Longitude
American Telephone & Telegraph Company	Comstar I-F-2	95
Western Union Corporation	Westar I-F-1	99
Telesat Canada	Anik I-F-1	104
Telesat Canada	Anik I-F-2	109
Telesat Canada	Anik I-F-3	114
Department of Communications National Aeronautics & Space Administration	CTS-1 or Hermes	116
RCA Corporation	Satcom I-F-1	119
Western Union Corporation	Westar I-F-2	123.5
American Telephone & Telegraph Company	Comstar I-F-1	128
RCA Corporation	Satcom I-F-2	135.8
National Aeronautics & Space Administration	ATS-6	140

SOURCE: Op. cit.

SUPPLEMENTARY EXHIBIT L3

TENTATIVE REGISTRATIONS FOR THE WORLD RADIO ADMINISTRATIVE CONFERENCE (WRAC)

Degrees West Longitude	Telesat List 09/78	Telesat* List 01/79
104	Anik IA-F-1	
106	Anik I-F-2	
106.5		Anik I-F-2
109		Anik IA-F-1
112.5	Anik II-F-1	Anik II-F-1
114		Anik I-F-3
116	Anik II-F-2	Anik II-F-2
122	SBS II-F-X	
135	Comstar II-F-1	

* flight spacecraft for which positions have not yet been determined:

Anik II-F-3, Anik II-F-4 and Anik II-F-5
Anik IB-F-1 and Anik IB-F-2

NOTE: The first list was copied down by hand during an interview. The second list was supplied by telephone. Variances and the general lack of information on orbital and frequency registrations prompted a search inside the communications department.

An invitation was received near the end of an interview to examine some old material which for no apparent reason is kept in a safe. At the appointed time one week later, access was provided to two file folders which contained ten-year-old correspondence without markings of any kind, e.g. *confidential*. It required one hour to read and extract new information from one half of one file folder. About this time, the communications department officials who did not wish to endanger their jobs and the researcher who did not wish to allocate another seven months to another re-write realized that a reassessment was warranted. From this point onwards, the public servants seemed to display an unhealthy fear of the security forces which apparently occupy an entire floor in the Journal Building North. A request was made and readily accepted that the examination should be halted until the status of the material could be checked with a higher authority(s). That weekend, a request was received by telephone for the return of the 10 copied pages. On two separate occasions, different - probably invalid - reasons were given for the return request. One was that a breach of the Official Secrets Act had occurred. The other was that release of the material required the approval of the Telesat engineering vice-president. During the final meeting, the pages were returned.

SUPPLEMENTARY EXHIBIT L4

EARLY REFERENCES TO ORBITAL SLOTS

Satellite	International Frequency Registration Board Circular No. 817 06/68	Gotlieb-Hyde Correspondence 5 ⁰ spacing co-placed units 05-08/69	Gotlieb-Burch Correspondence 7 ⁰ spacing adjacent units 02/71
Anik I-F-1	120 ⁰	120 ⁰	114 ⁰
Anik I-F-2	85 ⁰	85 ⁰	109 ⁰
Anik I-F-3			104 ⁰

SOURCES: "International Frequency Registration Board, "Information Concerning a Satellite Communications System Project," Circular No. 817, Geneva, Switzerland, 6 August 1968, (Mimeographed); Letter from the deputy minister of the federal communications department to the chairman of the U.S. Federal Communications Commission, Ottawa, Ontario 28 May 1969, (Mimeographed); and Letter from the deputy minister of the federal communications department to the chairman of the U.S. Federal Communications Commission, Ottawa, Ontario, 12 February 1971, (Mimeographed.)

SUPPLEMENTARY EXHIBIT L5
SATELLITE CONFIGURATION PROPOSALS

Organization(s)	Operational Unit(s)	Number Spare(s)	On-ground	R.F. Channels per Spacecraft	Leased TV Circuits	Estimated Cost \$ 000,000
Niagara Television Limited, Power Corporation of Canada and RCA Victor Limited	1	1	1	6		20 - 26
Science Secretariat	1			3		
Northern Electric Co. Ltd. for the Department of Transport	1	1	1	12		22.5
Trans-Canada Telephone System and CN/CP Telecommunications	1	1	1	12	1	17
Privy Council Office Task Force on Satellites	1		1	3 - 6		
White Paper	1	1	1	4 - 12		40 - 75
Industry Department Study Program						
RCA Ltd., Space Systems	1		1	8 or more		41.8
Northern Electric Co. Ltd.	2		1	6 - 12		43.4
Parliament	1		1	6		42 - 46

SUPPLEMENTARY EXHIBIT L6

EARTH STATION NETWORK PROPOSALS

Organization(s)	All-signal			Television		Estimated Cost \$ 000,000
	Heavy Route	Transmit/Receive	Main	Receive-only High Quality	Nominal Quality	
Niagara Television Limited, Power Corporation of Canada and RCA Victor Limited	3			65		9 - 14
Science Secretariat						
Northern Electric Co. Ltd. for the Department of Transport	3	14		20		
Trans-Canada Telephone System and CN/CP Telecommunications	6	1		9	38	38
Privy Council Office Task Force on Satellites						
White Paper	2	5		1 - 30		14 - 23
Industry Department Study Program	2 - 6	5 - 15		4 - 20	10 - 42	
Parliament	4		3	20		21

SUPPLEMENTARY EXHIBIT L7

DESIGN COMPARISON

Feature	RCA Ltd., Space Systems	Northern Electric Co.	Hughes Aircraft Company	
			6/4 GHz	14/12 GHz
Number of satellites	2	3	3	3
Number of independent R.F. channels	6	6	12	8
Reliability	0.7	0.7 - 0.9		
Years of successful operation	5	5 - 10		
TWT wattage		8	5	
Minimum storage life (years)		2		
Channel re-use				
optional	x	x		
integral				x
Orbital life (yrs)		5 - 10		
Number of effective channels	8 - 12	6 - 12	12	16
Spare R.F. channels	1 - 3	1 - 3	6	6
Total Possible Capacity	15 - 21	11 - 33	30	42
Number of R.F. channels for multiple-access	6 or more	2 or more		
Booster	Thor-Delta	Thor-Delta Atlas-Burner II	Thor-Delta	Space shuttle Delta 3914
Cost, \$ '000	41,783	43,403	35,000	54,000

cont'd

Feature	RCA Ltd..	Northern	Hughes Aircraft Company	
	Space Systems	Electric Co.	6/4 GHz	14/12 GHz
Canadian content	less than 100%	80%	14%	40%
Delivery schedule (mos)				
F-1	32	30		
F-2	37	32		
F-3		33		
Cost \$'000 per satellite	20,900	14,500	11,700	18,000
Cost \$'000 per effective R.F. channel	5.3 - 3.5	7.2 - 3.6	2.9	1.3

SOURCES: Op. cit.

SUPPLEMENTARY EXHIBIT L8

GROSS CAPACITY UTILIZATION OF ANIK 1s

Month/Year	Total	Losses	Avail- able	Full	Occas- ional	Back-up	Excess
01/73	12		10	3			7
02/73	12		10	4			6
04/73	12		10	7			3
05/73	24		20	7			13
01/74	24		20	8			12
06/74	24		20	11	1		8
10/74	24		20	14	1		5
03/75	24		20	18	1		1
05/75	24		20	23	1		(4)
06/75	36		30	13	1	8	16
07/75	36		30	13	1	8	16
06/76	36		30	8	1	8	21
07/76	36		30	8	2	8	20
09/76	36		30	8	2	0	20
01/77	36		30	8	2	1	20
07/77	36		30	8	2	6	20
08/77	36	R	20	8	2	6	10
10/77	36		20	8	2	11	10
11/77	36	TWT	19	8	2	11	9
01/78	36	TWT	18	8	2	11	8
04/78	36		18	8	2	11	8
09/78	36		18	8	2	11	8
01/79	36		18	4	2		12
02/79	48		28	4	2		22
04/79	48		28	1	1		26
06/79	48		28		1		27
06/81	48		28				28

R receiver

TWT travelling wave tube

SOURCES: Canada, Telesat Canada, "Anik A History," Ottawa, Ontario,
11 August 1978, (Mimeographed) and Idem, "Telesat Canada," Ottawa, Ontario,
21 August 1978, (Mimeographed.)

SUPPLEMENTARY EXHIBIT L9
FORECASTED CAPACITY UTILIZATION
(1980-85)

	Year					
	1980	1981	1982	1983	1984	1985
<u>6/4 GHz Facilities</u>						
Total Channels	24	24	35	33	31	34
Full Channel Rentals	8	8	8	9	9	9
Excess Capacity	15	15	26	23	21	24
<u>14/12 GHz Facilities</u>						
Total Channels	16	36	36	52	52	52
Full Channel Rentals	9	21	21	21	21	21
Excess Capacity	25	15	15	31	31	31
TOTAL EXCESS	40	30	41	54	52	55

SOURCE: Canada, Telesat Canada, "R.F. Channel Availability & Forecast Utilization; TCTS Membership," Revised Supplementary Information, Ottawa, Ontario, 31 May 1977, (Mimeographed.)

SUPPLEMENTARY EXHIBIT L10
UNOFFICIAL MARKET POTENTIAL ESTIMATE
(SEPTEMBER 1970)

Customer	Number of R.F. channels		
	Year		
	1973	1975	1978/80
CBC-TV	3 - 4	4	5 - 9
Private TV		1	2
TCTS-Message	3	4	5
CN/CP-Message		2	2
Other users		1	2

SUPPLEMENTARY EXHIBIT L11
SELECTED EARLY SATELLITE LAUNCHINGS

Code-Name	Date	Weight, in Orbit
Sputnik 1	04/10/57	00184
Sputnik 2	03/11/57	01120
Vanguard	06/12/57	—
Explorer 1	14/01/58	00031
Vanguard TV3	05/02/58	—
Vanguard TV3	28/04/58	—
Sputnik 3	15/05/58	02926
Vanguard TV3	26/09/58	—
Score	18/12/58	08800
Lunik 1	02/01/59	03245
Vanguard 2	17/02/59	00022
Explorer 6	07/08/59	00143
Vanguard 3	18/09/59	00100
Explorer 7	13/10/59	00092
Transit 2A	22/06/60	01587
Sputnik 5	19/08/60	10120

SOURCE: J.A.R. Brothers, ed., Canadian Telecommunications' Profile: A Handbook of Facts, Events and Choices From 1720 to 1976 (Ottawa: By the Editor, 144d Woodridge Crescent, 1976.)

SUPPLEMENTARY EXHIBIT L12

COMPARISON OF THE ATS-6 AND THE CTS-1

Design Parameters

Feature	ATS-6	CTS-1
Stabilization System	3-axis	3-axis
Frequency Bands	2 - 6 GHz 30/20 GHz	14/12 GHz
Launch Date	30/05/74	17/01/76
Launch Vehicle	Titan 3C	Delta 2914
Antenna	3-foot	two 20-inch
Power	595 watts	1260 watts
Radiated Power	53 dBw	60 dBw
Solar Arrays	two, semi-cylindrical 7 square metres	two, flat 30 square feet
Travelling Wave Tubes		one 200-watts, 50% efficient two 20-watt
Lifetime:		
Mission	2 years	2 years
Design	5 years	
Ground Antenna	3-metres in diameter	1-metre in diameter
Transponder Bandwidth		85 MHz
Weight	1348 pounds	747 pounds

Technical Studies

ATS-6	CTS-1
Radio Frequency Interference Measurement Experiment (5900 - 6400 MHz)	Time-Division Multiple-Access
Milimeter Wave (20&30 GHz)	Frequency-Division Multiple-Access Demand Assignment

cont'd

ATS-6

CTS-1

Tracking and Data Relay Experiment (2075 and 2250 MHz)	Simple modulation-demodulation equipment (modem) at a high rate of transmission
Position Location and Aircraft Communication Experiment (1550 and 1650 MHz)	Small terminal evaluation
Data Collection Platform	Signal reception in metropolitan environments
Electromagnetic Environmental Survey	Applications of radio broadcasting
Building Attenuation Measurement Program (860, 1550 and 2560 MHz)	TV special demonstration
Apollo-Soyuz Test Program (2075 and 2250 MHz)	Train Location
Propagation (13 and 18 GHz)	Very long baseline interferometry
Advanced Thermal Control Flight Experiment	Digital modems for High Rate Data
Spacecraft Attitude Precision Pointing and Slewing Adaptive Control	Government of Teleprocessing Network
Cesium Bombardment Ion Engine	Signal Processing Techniques for Data Communications
Quartz-Crystal Microbalance Contamination Monitor	Transportable terminals
Interferometer High Data Rate Acquisition System (300 - 1,000 KHz)	
Television Camera (0.1 Hz - 5 MHz)	
Spacecraft Vibration Accelerometers	
Geosynchronous Very High Resolution Radiometer (1.0 Hz - 250 KHz)	

cont'd

ATS-6

CTS-1

Enviromental Measurements Experiment

Radio Beacon Experiment
(40, 140 and 360 MHz)

Social Studies

Health, Education, Telecom-
munications (2569 and 2670 MHz)

Community Interaction

Satellite Instruction Television
(860 MHz)

Telemedicine

Television Relay Using Small
Terminals (860 MHz)

Tele-Education

Administration

Multi-Ministry Administrative and
Operational Experiments

Educational and Social Development in
Indian Communities

Digital Video Curriculum Sharing

CAI in Native Languages

Upgrading Mathematical Competence of
Elementary School Teachers

Cultural Exchange

Communications in Native Communities

SOURCES: Fairchild Space and Electronics Company, "ATS-6: Mission - Design - Orbital Performance," Germantown, Maryland, Revision 1, October 1975, (Brochure) and A. Casey-Stahmer, "The Canadian Communications Technology Satellite Experiment Project," Ottawa, Ontario, January 1975, (Mimeographed.)

SUPPLEMENTARY EXHIBIT L13

COMPARISON OF FORECASTS AND ACTUAL LAUNCH DATES

	12 R.F. - Channel Forecast for the Transport Department		6 R.F. - Channel Testimony Before Commons Standing Committees		12 R.F. - Channel Description to the FCC		8 R.F. - Channel Forecast for 14/12 GHz Units	
			6 and 12 - R.F. Channel Forecast for the Industry Department		6 - R.F. Channel Forecast in NASA Launch Contract		12 R.F. - Channel Actual	
Flight Spacecraft								
Satellite 1	1/70	3/71	4/72	4/69	4/72	4/72		
Spare 1	3/70	3/72 or 73	1/75 or 78	4/70	1/73	2/73		
Spare 2	1/75	3/76		4/73	?/75	2/75		
Spare 3	2/77	1/77				4/78		
Spare (Optional)	2/78							
Spare 4	1/82							1/81
Spare 5	1/85							3/81
Spare 6	3/88							

SOURCE: Op. cit.

SUPPLEMENTARY EXHIBIT M1
SELECTED FINANCIAL DATA ON CN/CP TELECOMMUNICATIONS

Year	CNT		CPT	
	Cost of Plant '000	Operating Revenues '000	Cost of Plant '000	Operating Revenues '000
1967	278,105	50,555	115,645	34,758
1968	287,753	54,576	122,660	37,678
1969	301,602	59,162	131,062	39,340
1970	314,823	65,605	131,311	42,809
1971	333,760	69,605	136,222	42,997
1972	350,556	75,242	138,779	45,818

SOURCE: Canada, Canadian Radio-television and Telecommunications Commission, "Telesat Canada Application for Approval Agreement Under Which Telesat Becomes a Member of T.C.T.S.," 4 vols., Ottawa, Ontario, 1977, (Mimeographed,) pp. 124, 130.

SUPPLEMENTARY EXHIBIT M2

CANADIAN PACIFIC LIMITED APPLICATION

THE APPLICANT HEREBY APPLIES FOR ORDERS TO THE FOLLOWING EFFECT,
VIZ.:

(A) requiring THE BELL TELEPHONE COMPANY OF CANADA to afford all reasonable and proper facilities for the receiving, forwarding and delivering of telegraphic or telephonic messages (hereinafter referred to jointly as *telecommunication traffic*) upon and from its telegraph and telephone system or lines;

(B) requiring THE BELL TELEPHONE COMPANY OF CANADA to afford all reasonable and proper facilities for the interchange of telecommunication traffic between the telegraph and telephone systems and lines operated by CP TELECOMMUNICATIONS and BELL CANADA, respectively;

(C) requiring THE BELL TELEPHONE COMPANY OF CANADA to provide for the interconnection of its telephone system and line with the telephone system and line operated or to be operated by CP TELECOMMUNICATIONS, for the purpose of obtaining direct communication, whenever required, between any telephone or telephone exchange on CP TELECOMMUNICATIONS' telephone system or line and any telephone or telephone exchange on BELL CANADA'S telephone system or line.

SOURCE: Canadian Pacific Limited, "Application - Re: Access to Bell Canada system for telecommunication traffic," Montreal, Québec, 14 June 1976, (Mimeographed.)

SUPPLEMENTARY EXHIBIT M3
CANADIAN TELECOMMUNICATIONS MARKET (1976)

SOURCE: Statistics Canada Report for 1976, quoted in CNC
Telecommunications, "Application for Interconnection to Bell System -
An Overview: The Issues and Positions," Montreal, Québec, 1978,
(Brochure,) Chart I, p. 19.

SUPPLEMENTARY EXHIBIT N1

PRIMARY ORGANIZATIONAL AFFILIATION OF TELESAT DIRECTORS

	1969	1970	1971	1972	1973	1974	1975	1976	1977
Department of Finance		1	1	1	1	1	1	1	1
Department of Communications	1	1	1	1	1	1	1	1	1
Canadian Broadcasting Company*	2	2	2	2	2	2	2	2	2
Canadian National Railway Company		1	1	1			1	1	
Telesat Canada	1	1	1	1	1	1	1	1	1
Outsider	A	A	A	A	B	B	B	B	B
Canadian Pacific Railway Company					1	1			1
Bell Canada			1	1	1	1	1	1	1
Maritime Telegraph & Telephone Co., Ltd.	1	1	1	1					
New Brunswick Telephone Co., Ltd.					1	1	1		
Newfoundland Telephone Co., Ltd.								1	1
British Columbia Telephone Company		1	1	1	1	1	1	1	1
Alberta Government Telephones					1	1			
Saskatchewan Telecommunications							1	1	
Manitoba Telephone System		1	1	1					1
Trans-Canada Telephone System	1	1							

* chairman

A ATCO Industries Ltd.

B Bristol Aerospace Ltd.

SOURCES: Canada, Telesat Canada, Annual Reports 1969-77 (Ottawa: Telesat, 1970-78).

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OF/DE

6

SUPPLEMENTARY EXHIBIT N2

EXECUTIVE LEVEL OF TELESAT DIRECTORS

	1969	1970	1971	1972	1973	1974	1975	1976	1977
Department of Finance		dm	dm	dm	dm	dm	dm	dm	dm
Department of Communications	adm	a	a	a	a	adm	sadm	sadm	sadm
Canadian Broadcasting Company	p-rt evp	p-rt evp	p-rt evp	p-rt p	p-rt p	p-rt p	p-rt p	p-rt p	p-rt evp
Canadian National Railway Company		d	d	d			svp	svp	
Telesat Canada	p	p	p	p	p	p	p	p	p
Outsider Canadian Pacific Railway Company	p	p	p	p	p	p	p	p	p
					vp	vp			vp
Bell Canada			evp	evp	evp	evp	evp	evp	evp
Maritime Telegraph & Telephone Co., Ltd.	c/p	c/p	c/p	c/p					
New Brunswick Telephone Co., Ltd.					vp	p	p		
Newfoundland Telephone Co., Ltd.								p/md	p/md
British Columbia Telephone Company		vp	vp	vp	vp	vp	vp	vp	vp
Alberta Government Telephones					gm	gm			
Saskatchewan Telecommunications							gm	gm	
Manitoba Telephone System	c/gm	c/gm	c/gm						c/gm
Trans-Canada Telephone System	c	c							

c	chairman
p	president
gm	general manager
evp	executive vice-president
svp	senior vice-president
vp	vice-president
md	managing director

dm	deputy minister
adm	assistant deputy minister
sadm	senior adm
d	director

rt	retired
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SOURCES: Canada, Telesat Canada, Annual Reports 1969-77 (Ottawa: Telesat, 1970-78).

SUPPLEMENTARY EXHIBIT N3

ORGANIZATIONAL CHART 1970

SOURCE: Canada, Telesat Canada, Annual Report 1970 (Ottawa: Telesat, 1971), p. 16.

SUPPLEMENTARY EXHIBIT N4

ORGANIZATIONAL CHART 1971

SOURCES: Canada, Telesat Canada, "Organizational Chart," Ottawa, 1973, (Mimeographed) and Idem, Annual Report 1971 (Ottawa: Telesat, 1972), p. 17.

SUPPLEMENTARY EXHIBIT N5

ORGANIZATIONAL CHART 1977

SOURCE: Canada, Telesat Canada, "Organizational Chart," Ottawa, Ontario, February 1977, (Mimeographed.)

SUPPLEMENTARY EXHIBIT 01

CBC EXPENDITURES FOR TELEVISION (FISCAL 1955-68)

Fiscal Year	Expenditure \$ '000	% provided by parliamentary grants	% provided by commercial advertising revenues
1955/56	34,012	52	47
1960/61	78,360	53	45
1961/62	82,613	62	37
1962/63	83,257	64	34
1963/64	89,411	65	33
1964/65	95,112	67	32
1965/66	101,552	67	31
1966/67	115,853	70	28
1967/68	141,319	71	26
1968/69	146,312	71	26

SOURCE: Canada, Parliament, Parliamentary Debates (Commons), 2nd session, 28th parliament (1969-70): 863.

SUPPLEMENTARY EXHIBIT 02

ESTIMATES OF INDIRECT SUBSIDY PAYMENTS TO TELESAT CANADA
(1973-77)

Year	Month	Average Revenue '000	Estimated Revenue '000	Variances '000
1973	January	1,120	203	917
	February	1,623	400	917
	March	1,623	400	917
	April	1,623	700	923
	May	1,623	700	923
	June	1,623	700	923
	July	1,623	700	923
	August	1,623	700	923
	September	1,623	700	923
	October	1,623	700	923
	November	1,623	700	923
	December	1,623	739	884
TOTAL		18,975	7,342	11,633
1974	January	2,337	800	1,537
	February	2,337	800	1,537
	March	2,337	800	1,537
	April	2,337	800	1,537
	May	2,337	800	1,537
	June	2,337	943	1,394
	July	2,337	1,120	1,217
	August	2,337	1,130	1,207
	September	2,337	1,140	1,197
	October	2,337	1,305	1,032
	November	2,337	1,460	877
	December	2,337	1,470	867
TOTAL		28,049	12,568	15,481

cont'd

Year	Month	Average Revenue ' 000	Estimated Revenue ' 000	Variances ' 000
CUMULATIVE TOTAL		47,024	19,910	27,114
1975	January	2,594	1,480	1,114
	February	2,594	1,490	1,104
	March	2,594	1,797	797
	April	2,594	1,900	694
	May	2,594	2,355	239
	June	2,594	1,420	1,174
	July	2,594	1,420	1,174
	August	2,594	1,420	1,174
	September	2,594	1,420	1,174
	October	2,594	1,420	1,174
	November	2,594	1,420	1,174
	December	2,594	1,420	1,174
TOTAL		31,129	18,962	12,167
CUMULATIVE TOTAL		78,153	38,872	39,281
1976	January	2,465	1,420	1,045
	February	2,465	1,420	1,045
	March	2,465	1,420	1,045
	April	2,465	1,420	1,045
	May	2,465	1,420	1,045
	June	2,465	920	1,545
	July	2,465	930	1,535
	August	2,465	940	1,525
	September	2,465	930	1,535
	October	2,465	940	1,525
	November	2,465	950	1,515
	December	2,465	960	1,505
TOTAL		29,580	13,670	15,910

cont'd

Year	Month	Average Revenue ' 000	Estimated Revenue ' 000	Variances ' 000
CUMULATIVE TOTAL		107,733	52,542	55,191
1977	January	2,838	990	1,848
	February	2,838	1,000	1,838
	March	2,838	1,010	1,828
	April	2,838	1,020	1,818
	May	2,838	1,020	1,818
	June	2,838	1,020	1,818
	July	2,838	1,020	1,818
	August	2,838	1,020	1,818
	September	2,838	1,020	1,818
	October	2,838	1,020	1,818
	November	2,838	1,020	1,818
	December	2,838	1,020	1,818
TOTAL		34,053	12,180	21,873
CUMULATIVE TOTAL		141,786	64,722	77,064

Estimated Revenue Assumptions:

Usage-	Rate \$'000 per month
Full	100
Occasional (increments of 10 up to full usage rate)	10 - 100
Back-up	20

SOURCES: Canada, Telesat Canada, Annual Reports 1969-77 (Ottawa: Telesat, 1970-78); Idem, Parliament, Parliamentary Debates (Commons), 1st session, 30th parliament (1974-75): 10528; and United States, Federal Communications Commission, Memorandum, Opinion, Order, Authorization and Certificate, FCC 75-924, Washington, D.C., July 1975, (Mimeoographed,) p. 986.

SUPPLEMENTARY EXHIBIT P1

ESTIMATES VERSUS APPROXIMATE ACTUAL COSTS

Factor	———— \$'000 ————	
	System Described to the Commons Standing Committee	System Based Upon Hughes Aircraft Bid
Spacecraft construction	41,750.	72,000*
Earth stations	20,500	38,000
Research and development	20,000	————
Launch	12,000	70,000*
Spacecraft completion	7,500	6,000
Contingencies	1,450	12,000
Insurance	1,300	8,000
TOTAL	106,000	210,000

Extraordinary expenses externalized to the customer:

rearward links	\$250,000 per tower
echo suppressors	\$250,000 per year depending upon the number of channels

Unexpected expenses accrued by the crown enterprise:*

increases in NASA charges	\$26,250,000
optional spare	\$22,000,000

SOURCES: Op. cit.

SUPPLEMENTARY EXHIBIT P2

AN ILLUSTRATION OF THE RELATIONSHIP BETWEEN R.F. CHANNELS, BATTERY POWER, OPERATING LIFETIME AND RELIABILITY

Total Channels	Eclipse Channels	Orbital Life	Reliability
8	3	5	0.69
7	5	5	0.69
6	4	10	0.50
6	4	5	0.89

SOURCE: Canada, Department of Industry, Canadian Domestic Satellite Study (Ottawa: Northern Electric Co. Ltd., Aerospace Communications Laboratory, 1968), sec. 1, table 1, p. 4.5-2.

SUPPLEMENTARY EXHIBIT P3

ANOTHER ILLUSTRATION OF THE TRADE-OFFS FOR AN OPTIMUM CONFIGURATION

Configuration	Reliability	Weight (lbs.)
Bare Bones	0.408	66.1
Redundant RCVR, Nonredundant Output Channels	0.426	78.6
Redundant RCVR, One Redundant Output Channel	0.481	82.3
Redundant RCVR, One-for-Two TWT Channels, 4-PSA not redundant	0.845	85.2
Redundant RCVR, One-for-One TWT Channels, 4-PSA redundant	0.869	87.2
Redundant RCVR, One-for-One redundant output TWT, 4-PSA not redundant	0.910	93.8
Redundant RCVR, One-for-One redundant output TWT, 4-PSA redundant	0.941	97.2

SOURCE: Canada, Telesat Canada, Telesat Canada Satellite: Project Definition Phase - Final Report, Vol. B: Transponder Technical, Prepared under a directed sub-contract with RCA Ltd. (Ottawa: Northern Electric Co. Ltd., 1970), sec. 2, table I, p. 7.2-1.

SUPPLEMENTARY EXHIBIT Q1

EARTH STATION NETWORK
 BASED UPON FEDERAL BRIEFING SESSION
 ON 1 APRIL 1968

Type	Number of Stations			
	Small System		Large System	
	T - 0 yrs.	T - 2 yrs.	T - 0 yrs.	T - 2 yrs.
Main	2	3	2	6
Remote	5	15	5	15
Television Only				
- High Quality	4	10	10	20
- Nominal Quality	10	42	10	42
System Evolution	Pilot	Interim		Final
Time Scale in Years	0	0 - 5		5 - 10

SOURCE: Canada, Department of Industry, Canadian Domestic Satellite Study (Ottawa: Northern Electric Co. Ltd., Aerospace Communications Laboratory, 1968), sec. 3, p. 2.2.-2.

SUPPLEMENTARY EXHIBIT Q2

MAIN EARTH STATIONS - PROPOSALS VERSUS ACTUAL

Unit	Commons Standing Committee Description March - May 1969	Telesat, R.A.C., T.A.C., D.O.C. Meetings June-November 1969	Telecommission Report 1970	Actual 1978
Heavy Route	Vancouver	Lake Cowichian	Vancouver	Lake Cowichian
	Montreal - Ottawa - Toronto	Allan Park	Montreal - Ottawa - Toronto	Allan Park
	St. John's		St. John's	
Network Television	Toronto - Montreal		Edmonton	Hugget
	Vancouver		Regina	Qu'Appelle
	Other		Winnipeg	Bélair
			Halifax	Harrietsfield
			St. John's	Bay Bulls

SOURCES: Canada, House of Commons, Standing Committee on Broadcasting, Films and Assistance to the Arts, Minutes of Proceedings and Evidence, No. 42 (Ottawa: Queen's Printer, 1969), p. 42; Idem, Department of Communications, Analysis of the Relationships Between the Functions of the Common-carriers and Those Engaged in Broadcasting, Telecommission Study 1 (d) (Ottawa: Information Canada, 1971), p. 57; and Idem, Telesat Canada, Annual Report 1974 (Ottawa: Telesat, 1975), p. 3.

SUPPLEMENTARY EXHIBIT Q3

6/4 GHZ EARTH STATIONS IN CANADA (1973-78)

	Date of First Service	Date of Last Service	Population in 1976
<u>HEAVY ROUTE (HR)</u>			
Allan Park, Ontario	11/01/73		
Lake Cowichan, B.C.	05/02/73		
<u>NORTHERN TELECOMMUNICATIONS</u>			
Resolute, N.W.T.	11/01/73		171
Frobisher Bay, N.W.T.	11/01/73		2,320
<u>THIN ROUTE: BELL-NORTHERN #2</u>			
Churchill, Manitoba	??/01/73	??/01/76	1,699
Igloolik, N.W.T.	01/02/73		675
Pangnirtung, N.W.T.	01/02/73		807
Rankin Inlet, N.W.T.	01/04/73		852
Winisk, Ontario	07/02/74		
Povungnituk, Québec	09/02/74		
Big Trout Lake, Ontario	??/02/74	??/01/78	
Coral Harbour, N.W.T.	25/03/74		414
Rea Point, N.W.T. (Portable)	16/09/74		
Saglouc, Québec	20/10/74		240
Cape Dorset, N.W.T.	03/11/74		677
Eskimo Point, N.W.T.	23/11/74		835
Sanikiluaq, N.W.T.	29/11/74		300
Inoucdjouac, Québec	16/12/74		565
Fort Severn	25/01/75		
Nanisivik, N.W.T.	25/01/75		
Fort Hope, Ontario	15/09/76		
Lansdowne House, Ontario	01/10/76		1,150

cont'd

	Date of First Service	Date of Last Service	Population in 1976
<u>THIN ROUTE: BELL-NORTHERN #2</u>			
Kasabonika, Ontario	27/11/76		368
Chesterfield Inlet, N.W.T.	14/12/76		241
Slate Falls, Ontario	04/06/77		
Cat Lake, Ontario	08/06/77		
Muskrat Dam, Ontario	09/07/77		119
Sachigo Lake, Ontario	11/07/77		
Ogoki, Ontario	21/07/77		
Hall Beach, N.W.T.	31/03/78		288
Webique, Ontario	20/03/78		
Weagamow, Ontario	15/05/78		
Whale Cove, N.W.T.	15/10/78		117
Grise Fjord, N.W.T.	20/11/78		120
George River, Québec	04/12/78		
Ivujivik, Québec	18/12/78		
Repulse Bay, N.W.T.	31/12/78		

THIN ROUTE: CNT #?

Sachs Harbour, N.W.T.	04/04/76	162
Holman, N.W.T.	05/04/76	263
Snowdrift, N.W.T.	23/04/76	222
Hay River, N.W.T.	11/01/78	3,268

NETWORK TELEVISION (NTV)

Bay Bulls, Newfoundland	01/04/73
Huggett, Alberta	01/04/73
Qu'Appelle, Sask.	01/04/73
Bélair, Manitoba	01/04/73
Rivière Rouge, Québec	01/04/73
Harrietsfield, N.S.	05/02/73

cont'd

	Date of First Service	Date of Last Service	Population in 1976
<u>REMOTE TELEVISION (RTV)</u>			
Cassiar, B.C.	05/02/73		801
Fort Nelson, B.C.	05/02/73		2,916
Fort Smith, N.W.T.	05/02/73		2,288
Goose Bay, Labrador	05/02/73		496
Inuvik, N.W.T.	05/02/73		3,116
Pine Point, N.W.T.	05/02/73		1,915
Uranium City, Sask.	05/02/73		2,028
Watson Lake, Y.T.	05/02/73		808
Whitehorse, Y.T.	05/02/73		13,311
Yellowknife, N.W.T.	05/02/73		8,256
Dawson, Y.T.	15/02/73		838
Clinton Creek,	20/02/73	12/10/78	191
Faro, Y.T.	26/02/73		1,544
Elsa, Y.T.	01/04/73		456
Isles-de-la-Madeleine	01/04/73		
Port-au-Port, Nfld.	01/04/73		1,012
Sept-Isles, Québec	03/04/73		30,617
Fort George, Québec	09/04/73		
Fort Chimo, Québec	01/09/73		867
Poste de la Baleine, Qué.	02/09/73		
Norman Wells, N.W.T.	01/02/74		364
Fort Simpson, N.W.T.	07/02/74		1,136
Baker Lake, N.W.T.	21/03/74		856
Radisson, Québec	20/06/74		432
Pond Inlet, N.W.T.	15/11/74		500
Sandy Lake, Ontario	??/06/75	??/12/76	26
LG II, Québec	??/06/75	??/01/77	
Coppermine, N.W.T.)	10/10/75		755
Cambridge Bay, N.W.T.	31/10/75		612

cont'd

	Date of First Service	Date of Last Service	Population in 1976
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REMOTE TELEVISION (RTV)

Fort Chipewyan, Alberta	09/11/75		1,179
Nouveau Comptoir, Québec	21/11/75		812
Nain, Labrador	22/12/75		812
Eureka,	??/06/76	??/07/77	590
Tukoyaktuk, N.W.T.	29/10/76		51
Port Radium, N.W.T.	09/04/77		439
Spence Bay, N.W.T.	05/07/78		
Poste de Mistassini, Qué.	13/10/78		

FRONTIER TELEVISION

Teslin, Y.T.	14/05/76		241
Haines Junction, Y.T.	01/11/76		268
Carmacks, Y.T.	09/11/76		346
Pelly Crossing, Y.T.	23/11/76		135
Ocean Falls, B.C.	15/12/76		985
Beaver Creek, Y.T.	30/12/76		123
Wollaston Lake, Sask.	29/01/77		567
LG III, Québec	06/02/77		
Camsell River, N.W.T.	09/04/77		
Duplanter, Québec	11/06/77		
Eol, Québec	14/06/77		
Deception Bay, Québec	07/07/77		
LG IV, Québec	11/08/77		
Lac Bienville, Québec	21/08/77		
Old Crow, Y.T.	21/10/77		221
Parent, Québec	28/01/78		392

cont'd

	Date of First Service	Date of Last Service	Population in 1976
<u>FRONTIER TELEVISION</u>			
Nemiscau, Québec	02/08/78		
La Verendrye, Québec	30/08/78		
Obedjiwan, Québec	03/12/78		
Weymount, Québec	16/12/78		

SOURCES: Canada, Telesat Canada, Annual Report 1974 (Ottawa: Telesat, 1975), p. 3; Idem, "TeleSat: Summary of Telesat Canada Earth Stations," Ottawa, Ontario, 3 January 1979, (Mimeographed); Idem, "Summary of Telesat Canada Earth Stations - Listed in Order of Date of First Service," Ottawa, Ontario, 3 January 1979, (Mimeographed); Idem, Statistics Canada, "Population of Unincorporated Places," Catalogue No. 92-830, Ottawa, Ontario, May 1978, (Printed); and Idem, "Municipalities, Census Metropolitan Areas and Census Agglomerations," Catalogue No. 92-806, Ottawa, Ontario, October 1977, (Printed.)

SUPPLEMENTARY EXHIBIT R1

R.F. CHANNEL USAGE - FORECASTE (1970-80)

PILOT STAGE: One 6-R.F. channel flight spacecraft

0 - 1 or 2 years

- (a) CBC English television, eastern time zone
- (b) CBC English television, mountain time zone
- (c) CBC French television, eastern time zone
- (d) Multiple-access message, basically arctic
- (e) Tests, demonstrations, CBC reverse
- (f) Spare

INTERIM STAGE: Two 6-R.F. channel flight spacecraft

0 - 5 years

West Satellite	R.F.#	East Satellite	Battery
Pacific Time Zone Television (11E)	1	Arctic Multiple Access Message	Yes
Central Time Zone Television (11E)	3	Eastern Time Zone (7W)	Yes
CTV National Channel	5	National French Television	Yes
CBC Reverse and Omnibus Channel	✓	East coast, Atlantic Time Zone Television	No
East-West Message (9E)	9	West-East Message (9W)	No

FINAL SYSTEM: Two 12-R.F. channel flight spacecraft or Four 6-R.F. channel ones with reverse polarization

West Satellite(s)	R.F.#	East Satellite(s)	Battery
Pacific Time Zone Television (11E)	1	Eastern Time Zone Television (11W)	Yes

cont'd

West Satellite(s)	R.F.#	East Satellite(s)	Battery
Central Time Zone Television (9E)	3	Atlantic Time Zone Television (9W)	Yes
West Arctic Multiple Access Message	5	East Arctic Multiple Access Message	Yes
Mountain Time Zone Television (11E)	7	Newfoundland Time Zone Television (11W)	No
ETV West	9	ETV Ontario	No
Spare	11	CBC French Reverse	No
CTV Central Time Zone Television (12E)	2	CTV Eastern Time Zone Television (12W)	Yes
CBC English Reverse (10E)	4	CBC National French (10W)	Yes
East-West Message (6E)	6	West-East Message (6W)	No
East-West Message (8E)	8	West-East Message (8W)	No
ETV West	10	ETV Québec	No
Spare	12	Spare	No

() possible sun transit assignments

SOURCE: Canada, Department of Industry, Canadian Domestic Satellite Study (Ottawa: Northern Electric Co. Ltd., Aerospace Communications Laboratory, 1968), sec. 3, pp. 2.3-1, 2.3-2, 2.4-2.

SUPPLEMENTARY EXHIBIT S1

MAIN POLICY INPUTS

October	1966	Proposal for a Canadian TV Network and a Domestic Space Satellite Distribution System - Niagara Television Limited and Power Corporation of Canada
February	1967	Upper Atmosphere and Space Programs in Canada - Privy Council Office, Science Secretariat
May	1967	Canadian Communications Satellite System - Trans-Canada Telephone System and CN/CP Telecommunications
July	1967	Task Force on Satellites - Privy Council Office - <i>Not Available</i>
March	1968	White Paper on a Domestic Satellite Communications System for Canada
July	1968	Study on Financing and Share Ownership - R.M. MacIntosh - <i>Not Available</i>
July	1968	Canadian Communications Satellite System: Considerations and Recommendations - Trans-Canada Telephone System and CN/CP Telecommunications
June	1969	An Act to Establish a Canadian Corporation for Telecommunications by Satellite

SOURCE: J. Chapman, "The Development of Policy for Domestic Satellite Communications," Speech delivered by an assistant deputy minister at the Department of Communications to the American Institute of Aeronautics and Astronautics, Los Angeles, California, 6 April 1970, (Mimeographed Outline.)

SUPPLEMENTARY EXHIBIT S2

FORMAL APPLICATION FOR ACCESS TO PRIVY COUNCIL OFFICE DOCUMENTS

Further to our telephone conversation yesterday and our meeting on 22 June 1976, this letter is a formal request for:

acknowledgement of the existence of the documents, reports, studies, memorandum, etc. listed below; and
the loan of a copy of each one of the items below; and/or
access to all or part of this information within the next three or four weeks in order to correct any error(s) in my master's thesis on Telesat Canada and to avoid reliance upon a variety of assumptions about their content, conclusions and/or recommendations.

The specific items are:

cost/benefit analysis(es) conducted by the Science Secretariat during or after the preparation of the PCO Study on the Upper Atmosphere and Space Program;
report of the PCO Task Force on Satellites and summary which was submitted to the Cabinet and/or cabinet committee(s);
policy statement(s) or other guidelines forwarded to the justice department and/or outside counsel who prepared various drafts of Bill C-184 which became the Telesat Canada Act of 1968-69;
document entitled: "Spacecraft Policy for the Canadian Domestic Satellite System" and dated 11 June 1969;
study on financing and share ownership prepared by Dr. R.M. MacIntosh; and
cost/benefit study(s) prepared by the Satellite Project Office while that temporary group was under the supervision of the PCO but reported to the Department of Industry.

In the event that any of the above items are unavailable, would you kindly advise me of the classification, i.e. confidential, secret, etc., and the reason(s) for refusal to allow access.

SOURCE: Letter to a member of the Culture and Native Affairs Secretariat in the Privy Council Office from a masters student at Carleton University, Ottawa, Ontario, 13 February 1979, (Mimeographed.)

SUPPLEMENTARY EXHIBIT S3

SECOND DENIAL OF ACCESS BY PRIVY COUNCIL OFFICE

I have received your letter, dated February 13, 1979, requesting information concerning the six items listed in your letter.

We have examined the files in the Privy Council Office on the basis of the description of the items as set out in your letter. Based on those descriptions, either the items could not be located in the files or they were classified material developed on a confidential basis for the use of Ministers or recording the decisions of Ministers and not available for release to the public at this time. Consequently, I regret that none of the items you have requested can be made available to you.

On the other hand, relevant information on Telesat Canada for the period in which you appear to be interested is publicly available. For instance, there is a document available for perusal at the library of the Department of Communications, which would provide you with some of the federal government's early policy decision on satellites. It's entitled "A Domestic Satellite Communications System for Canada" and was issued in March 1968. In addition, the House of Commons Debates on the Telesat Canada Act as well as the Minutes of the Standing Committee on Broadcasting, Films and Assistance to the Arts contain relevant information. You may wish to refer to these sources of information if you have not already done so.

SOURCE: Letter to a masters student at Carleton University from a member of the Culture and Native Affairs Secretariat in the Privy Council Office, Ottawa, Ontario, 2 March 1979, (Typewritten.)

SUPPLEMENTARY EXHIBIT T1
SUBJECTIVE SECTORAL AND TELESAT SCORE CARD

Class	Goal	Item	Promulgated by or on behalf of	Outcome	Highlight(s)
SOCIETAL		National Unity	gp	d	Cessionist government elected in Québec Parti Québécois expected to opt for a referendum on sovereignty-association rather than separation
		Fair and Equitable Rates	gp cc	d	No rates increases 1958-68 Eight increases 1968-78
		Service for all Canadians	gp	a	Chronic budgetary problems and the spectre of electoral defeat prompted a revision of priorities
OUTPUT		Acquisition and occupancy of geostation- ary orbits and space frequency band(s)	cc c	i	50:50 chance that a smaller Canadian <i>space window</i> will survive the 1979 World Radio Administration Conference intact
SYSTEM		Profitability	p	d	Indirect subsidization through externalization of cost factors, service and membership agree- ments payments, military usage
		Growth	p	d	Duplicate space systems but extremely low utilization of satellite capacity
PRODUCT		Time delay	cc	i	Failure to utilize comparative advantage in an appropriate area for real competition

cont'd

Class	Goal	Item	Promulgated by or on behalf of	Outcome	Highlight(s)
PRODUCT		Duplicate in-orbit spacecraft and reserved R.F. channels	cc	i	Risk aversion Reserved channels on 14/12 GHz units with duplicate travel- ling wave tubes plus spare tubes
		Inter- connection distance	cc	i	Prevented competitive entry Expansion of 6/4 GHz earth station system confined to the North for 10 years
DERIVED.		Indigenous research & development	sc	d	Emphasis on stability and status quo rather than on resource development and indigenous innovations

Promulgation Key	Outcome Key
gp general public	i implimented
c cabinet	d displace
cc common carriers	a abandoned
sc science community	

SUPPLEMENTARY EXHIBIT T2
POT-POURRI OF ITEMS WON AND LOST

Party	Won	Lost
FEDERAL GOVERNMENT		
Parliament		credibility as a guardian of the democratic decision-making process and an institution which can exercise control of the Cabinet and public service
Cabinet	veto power over new system planning and revenue sharing outputs of the TCTS Board of Management prevented a significant decline in its powers high visibility of the northern telephone service program	credibility as a productive managerial body and trustworthy delegatee of parliamentary prerogatives <i>de facto</i> expansion of its jurisdiction
Department of Communications	organizational growth Alouette, ISIS, CTS projects then supplementary funds	credibility as a productive, necessary and separate entity credibility that a return on long-term R&D investment will be delivered
Canadian Radio-television and Telecommunication Commission	expansion of jurisdiction	credibility as an independent and quasi-judicial agency encroachment by the communications department
Canadian Broadcasting Corporation	accelerated expansion of its networks earth station ownership new equipment	distribution over satellite circuits designed exclusively for its needs

cont'd

Party	Won	Lost
Canadian National Railway	crown enterprise listed as its associate company	territorial concessions to the telephone common carriers
Teleglobe Canada	interconnection with the TCTS and co-optation by AT&T quantum expansion in corporate powers, territory and managerial freedom federal investment in CANTAT 2 and possibly TAT-7	Anik I rental charges pending loss of seat on the INTELSAT board
Canadian Pacific Railway	unknown	minority shareholdings in crown enterprise
Telesat Canada	corporate survival beyond the economic lifetime of the Anik Is token organizational growth	residual independence long-term viability
TRANS-CANADA TELEPHONE SYSTEM	privilege to function as a consortiums' consortium control over Telesat operations in the 14/12 GHz bands and rearward links in the two-way 6/4 GHz ones preservation of the <i>status quo</i> expansion of service capabilities (data, tele-conference calls) co-optation of the federal government two new precedents for an exclusive list of approved telecommunications common carriers	capital investment in crown enterprise and annual payments through service and membership agreements temporary re-distribution of some traffic, e.g. overload

cont'd

Party	Won	Lost
TRANS-CANADA TELEPHONE COMPANY	prevention of the licensing of new specialized long-line operations or common carriers in direct and real competition	
PROVINCIAL GOVERNMENTS		
Cabinets	acknowledgement that the TCTS will handle national and regional system planning	capital investment in crown enterprise and annual payments through service and membership agreements
	option to install, own and operate educational television networks	
Principle crown carriers	preservation of cross-subsidization of local and regional exchanges by trans-Canada toll revenues	
Public Utility Board	increased power to regulate CATV operations	
OTHERS		
General Public	marginal improvement in northern service to about fifty communities	<p>economies of scale from television distribution to 100 communities</p> <p>dis-economies of scale from multiple-access services in the North</p> <p><i>taxation without representation in the form of indirect subsidies and a lack of cost recovery for satellites and earth station procurement</i></p> <p>right to invest, access to the courts and dividends from a specialized common carrier</p>

cont'd

Party	Won	Lost
OTHERS		
Telephone Subscribers	multiple-access design on the Anik I circuits	across-the-board reduction in toll rates opportunity to reject the myth that flat rates somehow yield something for nothing
Underwriters		lucrative subscription fees nomination of directors who would have held the balance of power on the board
Bell Canada	Allan Park site selection expansion in the NWT, Labrador and Newfoundland bulk of the military traffic over the Anik I circuits	service agreements payments
Québec- Téléphone	protection of the Goose Bay and Murdochville circuits	pooling or sub-leasing arrangements similar to CNR ones
British Columbia Telephone Company	prevention of the repatriation of telecom- munications operations even though broadcasting ones have been bought back Lake Cowichian site selection	service agreement payments

APPENDIX A
BROADCASTING INTERESTS

Broadcasting was stimulated in the latter half of the 1910s by the response of amateur operators to the range tests of wireless telephony using records and singers. The pioneer station owners were predominantly newspapers and electronic equipment manufacturers. The General Agreements of 1920 and 1926 plus other related arrangements between American Telephone and Telegraph Company (AT&T), General Electric Company, Westinghouse Electric & Manufacturing Company, Marconi's Wireless Telegraph Co. Ltd. *et al* were the prelude to a series of consolidation efforts in three countries.

In the USA, their schemes led to the organization of the Radio Corporation of America (RCA) and its broadcasting subsidiary. The National Broadcasting Company (NBC) acquired the Red, Blue and Pacific Networks mostly from AT&T which received two items in exchange. One was a cash payment of one million dollars for the New York, flag-ship station (WEAF). The other was a contractual commitment for the provision of telephone circuits rather than telegraph ones or short-wave linkage to connect these stations into networks. The Consent Decree of 1932 confirmed the managerial independence of RCA and NBC. The Columbia Broadcasting System (CBS) which had had to use its political clout and the threat of regulatory intervention to obtain a firm quotation and commitment to link the radio stations in its neophyte network began to challenge and eventually outgrew the NBC. In the late 1970s, a third commercial network (American Broadcasting Companies) surpasses both of these networks. An essential component in the above scheme was that advertising should be the financial basis of operation.

In 1922, the British Post Office finally issued a broadcasting licence to the Marconi's Wireless Telegraph Co. Ltd. A few months later, the Postmaster-General suggested that a single authority might be formed by the licensee applicants in order to alleviate the congestion and competition for a limited

number of frequencies. By the end of the year, six large manufacturers had organized the British Broadcasting Co. Ltd. Three years later, it entered into an agreement with RCA for an exchange of programmes. About six months after the British company was incorporated, the Postmaster-General announced the appointment of a committee to consider the future of broadcasting. Based upon its recommendations and after the expiry of the licence in 1926, the British Broadcasting Corporation (BBC) was incorporated under a Royal Charter and set up with a unique degree of independence as a crown company.

In Canada, a royal commission was appointed which prepared the Aird Report. It contained recommendations for the establishment of a publicly-owned broadcasting system, the takeover of all privately-owned facilities, and the creation of a twelve-member board with nine provincial appointees and three federal ones. The reaction was fourfold. The private radio station owners became affiliated with one of the American networks and formed the Canadian Association of Broadcasters. An elitist lobbying group named the Canadian Radio League was formed to ensure national radio broadcasting and the incorporation of a crown company similar to the BBC. The Canadian Pacific Railway Company (CPR) began to lobby at the prime ministerial and cabinet level for exclusive commercial rights in the radio broadcasting field. The Attorney General of Québec challenged the constitutional right of the federal government to regulate broadcasting undertakings.

The federal government won the Re Radio Reference Case in 1932 and proceeded to set up the three-man Canadian Radio Broadcasting Commission. These salaried commissioners set the precedent for the interconnection of telephone and telegraph operations. Their pooling scheme however succumbed to the political clout of the CPR and the advanced technology of the railway companies which already had arranged for the installation of carrier current circuits on their trans-continental trunk lines. The commissioners also introduced several hours per week of French-language programmes during prime time. This sudden change triggered a vigorous reaction by religious groups including the Protestant Vigilance Committee. Their efforts led to the organization of separate English and French-language networks.

In 1936, this commission was reorganized as the Canadian Broadcasting Corporation (CBC) with a salaried manager and a ten-member board of volunteers who were appointed by order-in-council. Twenty-one years later, its board of governors was set up as an independent regulatory body called the Board of Broadcast Governors. In the 1960s, the first private television network (CTV) was permitted on the basis of one vote per station owner. Lastly, educational networks were authorized which acknowledged provincial rights and recognized an inherent paradox. In the broadcasting segment of the communications policy field, entertainment and educational aspects common to the public interest and commercial ones can perhaps best be accommodated in a democratic society by a separation of facilities.

APPENDIX B
~~RAILWAY~~ INTERESTS

In 1880, the federal Department of Railways and Canals entered into an agreement with six financiers for the completion of a trans-continental railway. When the Canadian Pacific Railway Company (CPR) was organized during the following year, monopolistic rights for commercial telegraph service along its route were included in the Dominion charter. Ostensibly, this was done in order to avoid a duplication of facilities since train dispatchment by telegraphy was mandatory for the safe operation of any railroad. Twenty years later, the exclusiveness of this grant was broken when this kind of rights was issued to another railway company.

In 1922, the Canadian National Railway Company (CNR) was incorporated under a Dominion charter to take over the defunct Canadian Northern Railway Company. The Grand Trunk Pacific Railways had been acquired by the federal government during the previous year. Their amalgamation would be augmented by the Canadian Government Railway and any other line so entrusted by order-in-council.

In 1933, the CNR and CPR began to pool the cost to distribute national radio programmes and to share those common carrier circuits on a 50:50 basis. Fourteen years later, these two companies officially began to pool their operations in private wire services. Between 1928 and 1958, all toll traffic to and from the West routed through Canada travelled over their Sudbury-Winnipeg telegraph circuits. Beginning in March of 1968, these two companies started to implement a reciprocal withdrawal program for the closure of duplicate telegraph offices.

APPENDIX C

COMMUNITY ANTENNA TELEVISION (CATV) INTERESTS

In 1877, musical sounds were transmitted between two theatres in London. Six years later, one hundred and twenty people used receivers in the British Hotel to listen to "La Marseillaise." In 1891, other theatrical performances were transmitted from London to Birmingham over telegraph and telephone circuits. Although the Bell System installed coaxial cable between New York City and Philadelphia in 1936, it was not until after the Second World War that television signals were routinely carried over that circuit. Half a century separated these demonstrations of the technical feasibility of radio and television cablecasting. Were regulatory constraints on domestic adoption the crucial ones?

In 1894, The Electrophone Company was organized in London to provide National Telephone subscribers with musical performances, public speeches and church services. Regular cablecasts commenced during the following year but with only limited financial success. In 1901, that company was reorganized while negotiations were proceeding with the British Post Office for the final takeover of the local exchanges owned and operated by the National Telephone Co. Ltd. of London, a subsidiary of American Bell Telephone Company of Boston. The Electrophone revival was terminated by the British House of Lords when it banned any telephone company in the British Isles from the provision of fire alarm and similar signalling systems.

In 1937, a coaxial cable was used to bring radio signals from a receiving antenna down the mountain to the valley where a small Swiss town was located. Eleven years later, commercial operations were licensed in Pennsylvania and Oregon to provide broadcasting service to rural regions or into terrain where aerial signals did not penetrate. Instead of proceeding along this pathway, the cable television (CATV) operators preferred to lobby for access to the lucrative metropolitan markets. In

1951, a collateral innovation known as pay television was briefly introduced.

A year later, the first community antenna television system was placed into service in Montreal by Rediffusion Inc. In 1960, the Board of Broadcast Governors convened the Committee on Wired Systems which consisted of representatives from that board, the Canadian Broadcasting Corporation and the federal transport department. Their report contained the recommendation that the federal government should defer any action concerning community antenna television except that the transport minister should continue to permit the Board to review CATV applications. In 1963 and 1964, the federal Cabinet introduced Bills C-30, C-49 and C-40 which sought to explicitly authorize only the Board of Broadcast Governors to regulate community antenna television in Canada.

The CATV segment stood poised for the consolidation phase until very recently. Early in January of 1979, the Canadian Radio-television and Telecommunications Commission announced that the application by Rogers Telecommunications Ltd. of Toronto to take over the Canadian Cablesystems Ltd. of Toronto had been approved. A month later, vice-presidents from these two companies announced that Cable Satellite Network Ltd. planned to spend \$4,500,000 for one hundred and thirty earth stations. In addition, they estimated that the pay television network could be in operation by June of that year. Two weeks later, the revised policy on earth station ownership was released to the general public by the fourth communications minister.

APPENDIX D
MARITIME INTERESTS

In 1884, the Toronto Telephone Manufacturing Company filed a petition with the Commissioner of Patents and Minister of Agriculture pursuant to Section 28 in the Patent Act of 1872. Over the next three years, a series of renderings were made which voided the Bell and Blake patents yet preserved the Edison one. This breach of the patent pool arranged by the National Bell Telephone Company of Boston and the Western Union Telegraph Company of New York triggered a reaction by regional interests in the Maritimes. Between 1885 and 1889, political suasion was brought to bear on Bell Canada. A compromise was negotiated whereby the following licensees would be organized under provincial charters as originally planned by the American headquarters company: the Telephone Company, Ltd. of Prince Edward Island; the New Brunswick Telephone Co., Ltd. and the Nova Scotia Telephone Co., Ltd.

Various innovations, rumours and schemes for the laying of a trans-Atlantic submarine cable prompted a series of consolidations and acquisitions of landing rights similar to the fifty-year one granted by the Newfoundland government. In 1910, the Maritime Telegraph and Telephone Co., Ltd. of Halifax was incorporated to take over the assets and business of the Nova Scotia Telephone Co., Ltd. and to acquire the Telephone Co., Ltd. of Prince Edward Island. Seven years later, the Charlottetown subsidiary was reorganized as a joint venture with American Telephone and Telegraph Company (AT&T) under a Dominion charter with the title of the Eastern Telegraph and Telephone Company. About this time, the American and central Canadian interests garnered an agreement for the future conversion of the New Brunswick Telephone Co., Ltd. of Saint John to an associate company of Bell Canada. They were denied the possibility of majority control over the board of the Maritime Telegraph and Telephone Co., Ltd. of Halifax by a statutory provision.

The project to lay a single-channel, telephone cable was officially abandoned in 1929. AT&T acquired all of the shares and the corporate charter. Maritime Telegraph and Telephone Company reorganized the fixed assets and business under a provincial charter with the title of The Island Telephone Co., Ltd. of Charlottetown. After the Second World War, the above project (TAT-1) finally became possible. Bell Canada was forced to relinquish its majority interest in the New Brunswick and Nova Scotia companies. Then, these regional common carriers acquired the privilege of the appointment of two directors to the Eastern Telegraph and Telephone Company board. Later on, Bell Canada was allowed to reacquire its majority interest.

In 1976, Bell Canada reduced its holdings in Maritime Telegraph and Telephone Co., Ltd. of Halifax from fifty to forty per cent. The Halifax company reduced its holdings in The Island Telephone Co., Ltd. of Charlottetown from fifty-two to forty-nine per cent. Two years later, the microwave trunk line from Sydney Mines to the American border and the cable terminal on Newfoundland were sold to New Brunswick Telephone Co., Ltd.; Maritime Telegraph and Telephone Co., Ltd.; and Newfoundland Telephone Co., Ltd. of St. John's, respectively. These circuits would then be leased back to AT&T and Teleglobe Canada.

APPENDIX E

PRAIRIE INTERESTS

Popular British movements to nationalize telephone toll circuits and to municipalize local exchanges prompted similar activities in Canada. In 1905, the City of Edmonton purchased The Edmonton District Telephone Company and the Postmaster-General introduced a motion in the House of Commons for a select committee on telephone systems. That parliamentary committee failed to publish any conclusions or recommendations but the Bell Canada charter was amended such that its operations came under the perview of the Railway Act of 1903.

The newest provincial governments in the Canadian confederation were undeterred; however, by this minor federal concession and ploy to protect its chosen instrument. In 1906, a plebiscite was held in Manitoba after a select committee on public ownership had submitted its report. The outcome of a vote on a rider clause in a municipal money bill was that the majority of communities rejected ownership of local exchanges. The Manitoba Cabinet pushed on with its plans for direct competition in the provision of toll circuits. The Alberta Cabinet had already implemented a scheme for facility duplication between Calgary and Baniff.

By 1909, Bell Canada had abandoned forever the Prairie territory rather than compete with three provincial governments. Consequently, the following organizations were set up: the Alberta Government Telephones as part of the Department of Public Works; the Saskatchewan Department of Railways, Telegraphs and Telephones; and the Manitoba Government Telephones. After the passage of a number of years, each one was reorganized on several occasions until they became proprietary crown corporations.

APPENDIX F
WEST COAST INTERESTS

Why was the British Columbia territory never organized by an associate company of the Bell System? American Telephone and Telegraph Company (AT&T)'s influence can be traced using Melville Bell's agent from the licensee named: the Victoria and Esquimalt Telephone Co., Ltd. which was incorporated in the year (1880) that Bell Canada was organized through several takeovers to the organization of the British Columbia Telephone Co., Ltd. in 1904.

This trial ends in the year (1916) of the Montreal-Vancouver music transmission demonstration and the organization of the Western Canada Telephone Company of Vancouver under a Dominion charter by AT&T and/or other interest(s). In 1919, the Vancouver company adopted the name: the British Columbia Telephone Company and leased the circuits of the provincial company with a similar name. It took over those assets and that business in the year (1923) of the Bell Canada - AT&T service agreement revision.

The influence of another American interest group can be traced from the incorporation of the National Telephone & Telegraph Company and the Associates Telephone Utility Company in the year (1926) of the second General Agreement. In 1935, the latter company was reorganized as the General Telephone Corporation after bankruptcy proceedings. The former company had adopted the name: the British Columbia Telephone & Telegraph Company eight years earlier. It was acquired in 1925 by the Anglo-Canadian Telephone Co., Ltd. of Montreal which had been organized in 1934.

In 1959, the General Telephone Corporation adopted the name: the General Telephone & Electronics Corporation (GTE). Seven years later, it acquired a controlling interest in the Anglo-Canada Telephone Co., Ltd. In 1960, the British Columbia Telephone Company charter was amended to allow that company to take over others with similar objects. As of the last day of

that year, Anglo-Canadian Telephone Co., Ltd. of Montreal held a 50.31 per cent interest in regional common carrier. In 1973, the British Columbia government acquired 1,002,955 common shares for the Public Service Superannuation Fund. Early in 1979, the British Columbia Premier confirmed in a press interview that that provincial government had sought to block GTE from increasing its 50.14 per cent in British Columbia Telephone Company of Burnaby. He had requested that 3,000,000 newly-issued shares which would be exchanged for shares of GTE Automatic Electric (Canada) Ltd. and GTE Lenkurt Electric (Canada) Ltd. be placed into a voting trust which would be administered by British Columbia Resources Investment Corporation. He also confirmed that 5 free shares of that government-owned company would be distributed to Canadian citizens and residents of that province and that the majority of the stock in the crown company would be sold later that year.

The mystery which remains is why AT&T abandoned or was forced to relinquish this territory. One plausible explanation is that regional interests were able to maintain policy-making and administrative control until the late 1960s by playing the American and central Canadian interests off against each other. Another one is that the American interests were permitted by the Bell System to enter in order to neutralize forces which had triggered the anti-trust activities during the 1930s and after the Second World War.

APPENDIX G

INTERNATIONAL INTERESTS

In 1849, the New Brunswick and Nova Scotia Electro-Magnetic Telegraph Companies were organized as part of a trunk line circuit from Halifax to Washington, D.C. Shortly thereafter, the American Telegraph Company of New York used the threat of duplication and the lure of long-term leases to acquire these facilities. This company held the fifty-year exclusive landing rights for Newfoundland through the Anglo-American Telegraph Company. It merged with the Western Union Telegraph Company of Rochester then New York (Western Union) shortly after that company had taken over the defunct United States Telegraph Company in 1866. In 1911, the five trans-Atlantic cables operated by the Anglo-American Telegraph Co. were leased by Western Union for ninety-nine years.

Back in the late 1860s, the Postal Telegraph Company of Washington was incorporated under a special charter by the U.S. and state governments. By 1939, that company had appealed to the U.S. Congress for permission to merge with Western Union. The grounds were that its operations were unprofitable and that the corporation was heavily in debt to the Reconstruction Finance Corporation. In 1942, the merger was approved by the Federal Communications Commission and the U.S. Congress. The latter however ordered the sale of the trans-oceanic submarine cables. Twenty-one years later, these facilities were finally reorganized with an independent management and under the corporate title of the Western Union International Inc. Ostensibly, this option was the only viable one since a satisfactory buyer could not be found.

In 1884, the Commercial Cable Company was organized under a Dominion charter and laid its first trans-Atlantic cable. In 1902, this company operated four cables and was affiliated with the U.S. Postal Telegraph Co. By 1971, it was headquartered in New York City and was a subsidiary of the International Telephone and Telegraph Company (ITT). Certain banking

institutions in that city had taken over AT&T in 1907 and approved its acquisition of a majority interest in Western Union two years later. In 1925, these bankers arranged for the sale of the International Western Electric Company, a subsidiary of AT&T, to ITT after the liquid assets were stripped and a royalty payment of one per cent had been agreed upon by these parties.

In 1897, The Wireless Telegraph and Signal Company was registered. It was reorganized two years later as the Marconi's Wireless Telegraph Co. Ltd. (MWT) and the Marconi International Marine Communications Company. Its attempts to secure a monopolistic grant through patent litigation and an exclusive hold over ship-to-ship, ship-to-shore, coast-to-coast and trans-continental wireless circuits through the use of leasing and interconnection restrictions met with a series of setbacks over the next fifty years. In the end, the interventions of the British government reduced the company to a manufacturing subsidiary.

The American territory was lost after the struggle with the U.S. Navy, AT&T and General Electric Company led to the organization of the Radio Corporation of America (RCA). Patent pooling arrangements and the *Four-Party-Pact* between MWT, RCA, *Compagnie Française des Câbles Télégraphiques* and *Gesellschaft für Drahtlose Telegraphie (Telefunken)* neither deterred the Canadian Pacific Railway Company from preventing the installation of a Montreal-Vancouver wireless circuit nor halted the incremental encroachment of the British Post Office. In 1924, a committee report recommended that that department should be responsible for Imperial links except for Canada. Four years later, the traffic operations of MWT and the Associated Cable Companies which were heavily subsidized yet continued to accrue losses were merged to form the Cable and Wireless (Holding) Ltd. and the Cable and Wireless Ltd. Shortly after the Second World War, these facilities were nationalized and reorganized as the Commonwealth Telecommunications Organisation. The federal government was obliged to incorporate one of the crown companies which would make-up this consortium. In 1949, the Canadian Overseas Telecommunication Corporation was organized. In 1971, the *operator gateway* cities were still: Montreal, Vancouver and New York City.

APPENDIX H
GENESIS OF SPAR AEROSPACE LTD.

In 1927, the de Havilland Aircraft Company was incorporated under a Dominion charter then reorganized within a few months under an Ontario one. It took over the Hawker-Siddley Company and the Canadian Applied Research Ltd. in 1962. These organizations were merged into the Special Products and Applied Research (SPAR) Division. In October of 1967, that division was incorporated under Letters Patent of Canada. Late in 1968, this new firm acquired the York Gears Division of the Levy Industries Ltd.

The incorporators were: A.B. Steel, J. Gazdig, W.D. Jenkins, P.B. Moffat; G.E. Thompson, A.G. Stewart and Y.A. Hondericks. The transfer agent and registrar listed in the 1969 annual report was the Montreal Trust. According to Peter Newman, this trust company is *the main depository for financing Québec's federal and provincial Liberal parties*. As of 31 October 1977, the principal shareholders were: Crowborough of Toronto (199,600 common shares and 250,000 deferred shares), directors/senior officers (1.8%), and a partner of Borden & Elliot (400 common shares). Crowborough is owned by Messrs. Clarke, Dodwell and Jackson *et al.* (74%), SPAR directors/officers (13%) and SPAR employees (6%).

In January of 1976, Spar Technology Ltd. was acquired from RCA Ltd. of Montreal for \$4,000,000. Within two years, the Lucerne plant then the Kanata one were acquired from Northern Telecom Ltd. of Montreal. In September of 1978, the company adopted the name: Spar Aerospace Ltd. instead of Spar Aerospace Products Ltd.

APPENDIX I

SELECTION OF CANADIAN DEVELOPMENTAL OR OPERATIONAL SATELLITES AND RELATED EARTH STATIONS

A veritable host of factors and premises affected the selection of each earth station system or network and/or batch of satellite(s). In order to present them simply yet fairly, each choice is divided into section then segments which focus on a particular facility then a succession of active stakeholders.

1. Anik I Satellites

(i) The federal Cabinet may have sought to:

- . alter the economics of radio relay facilities in favour of satellite communications;
- . approve a definite procurement budget in order to prepare firm rental charges, schedule the occupation of registered frequencies and garner parking slots during the initial rush into space and a period of American largesse;
- . avoid any capital expenditures on infrastructure which could not be sustained during the foreseeable future and which might magnify the propensity towards boom-and-bust cycles in the manufacturing segment of this sector;
- . avoid the issuance of shares to certain underwriters which are closely connected with a particular common carrier in order to retain cabinet control and/or to the general public in order to avoid excessive underwriting expenses, alienation of that interest group and/or over-capitalization of its crown enterprise;
- . avoid the political repercussions that would accompany any permanent loss of scarce resources ideally suited for the solution of the technical aspects of certain Canadian communications problems;
- . avoid an explicit win/lose situation;
- . curtail the debate on the advisability of interim lease(s) of circuits on an American and/or French satellite;

- . delay the procurement as long as possible since the Main Agreement between the TCTS members and the CBC was due to expire in 1973;
- . extract itself from the unworkable idea of a manufacturing consortiums' consortium;
- . facilitate the application to the Federal Communications Commission by American common carrier(s) for the interim use of of Anik I circuits by the provision of a guarantee of smaller probable outage than unsubsidized and rival American common carriers could promise;
- . facilitate the *extract-and-abandon* exploitation of remote regions by the installation of facilities which could be relocated to new sites yet provide *live* television and a complete range of other services on a 24-hour basis;
- . inflate costs in order to legitimize the transfer of responsibility for satellite communications development and operation to the common carriers in exchange for certain contractual concessions from them and understandings with the provincial governments;
- . justify the ~~construction~~ of a superfluous developmental spacecraft by a federal r&d laboratory;
- . launch just ahead of the first American domestic communications satellite but wait as long as possible in order to reduce criticisms about over-build capacity in the terrestrial system;
- . prevent specialization;
- . procure the first batch of satellite before the permanent board was set up in order to provide additional protection for the only appointee (Telesat president) who might be sued for breach of faith as a guardian of the public interest and warden of the solitary share held on behalf of the general public and to prevent the filing of class action suit(s) by common carrier shareholders against the nominees;
- . provide its crown enterprise with enough excess capacity so that it would be a force which must be reckoned with and thereby increase the leverage of the central agencies and communications department for their negotiations with provincial governments and common carriers;
- . provide interim R.F. channels to the American Satellite Corporation and RCA Global Communications Inc. then use the surplus circuits for a pipeline development(s) from the North;

- . provide two different kinds of insurance against launch failure(s) plus component or unit malfunction(s) in order to meet common carrier specifications and to prevent any re-appraisal of the entire venture;
- . re-distribute military traffic revenues between national and/or regional common carriers;
- . reduce the out-of-pocket expenses of the prime satellite contract in order to forestall demands for an issue to the general public and to confine the negotiations on system planning and definitive arrangements for revenue sharing to bilateral discussions;
- . remain within the letter of the ministerial commitment that actual costs would be within five per cent of the estimates;
- . respond to the voluntary or solicited request in a written brief from the Canadian Association of Broadcasters at the opening of the last proceeding before Bill C-184 was reported out by the Commons standing committee;
- . secure international prestige and assist Canada's solitary fully-integrated common carrier (Bell Canada) in its transition to a world-scale operation;
- . secure a line of credit from a Canadian bank(s) by utilizing proven technology and components in order to reduce risks;
- . secure an optimum space window for Canada;
- . split the American or Section 2 space window so that the Aniks could be used to provide interim and back-up circuits;
- . stimulate innovation in services through public pressure to utilize the excess capacity;
- . stir up common carrier pride and stimulate the curiosity of their personnel; and
- . utilize common carrier revenues instead of federal taxation mechanisms.

(ii) The common carriers may have sought to:

- . acquire administrative control over Telesat operations and growth plus the rate and direction of satellite communications development;
- . delay the launch of the Anik I-F-1 so that the replacement of the first generation of key facilities would coincide with the estimated expiry date of the over-build capacity designed into the

terrestrial system and in order to enhance their bargaining leverage for a proper stock subscription formula and/or prime contract award to Hughes Aircraft Company;

- . delay, channel and contain operational adoption until commercial adoption could be effected under predictable circumstances and controlled conditions;
- . inflate the leasing costs in order to deter outsider participation and direct usage;
- . minimize the frequency of key facility choices by maximizing the batch size;
- . prevent the subsidization or promotion of an indigenous industry for the manufacture of general purpose or specialized satellites and/or turn-key systems; and
- . promote the adoption of a design which favoured data transmission field trials rather than television distribution operations.

(iii) The American aero-space manufacturer may have sought to:

- . externalize as much as possible of its investment in specialized plant, equipment and laboratories;
- . sell over-sized satellites to the federal government and the Indonesian one;
- . test an innovative proposal based upon the Intelsat IV record. A Delta booster could be used instead of an Atlas Centaur one on account of weight reductions since there would not be duplicate travelling wave tubes aboard; and
- . use a package deal to dump the 12-R.F. channel spacecraft ordered by the American Satellite Corporation and push up the total Canadian content.

(iv) The Canadian telecommunications equipment manufacturer may have sought to:

- . avoid any direct responsibility for the prime contract;
- . maximize the number of R.F. channels in order to spread out the write-off of a specialized pilot plant;
- . minimize accountability for sub-system performance; and
- . utilize the plant and equipment installed to produce a sub-system for one Intelsat IV satellite.

(v) The Telesat management may have sought to:

- . adopt a traditional practice of Canadian power utilities, i.e. to install too much capacity then sell it to the Americans until domestic demand absorbs the excess;
- . ensure organizational survival by deploying multiple forms of insurance against lump-sum financial losses, launch failure(s) and systemic or sub-system malfunction(s);
- . gain greater access to the guaranteed earnings of the common carriers;
- . guarantee the highest possible technical performance;
- . provide capacity for network and organizational growth;
- . rely upon the basic engineering principle that only one main innovation should be tested in any new complex project;
- . spend the available funds; and
- . use a booster manufactured by American firms with subsidiaries in Canada.

2. 6/4 GHz earth stations

(i) The federal Cabinet may have sought to:

- . compensate RCA Corporation - in part - for the loss of the prime satellite contract;
- . delay the formation of regional and national CATV then pay television networks;
- . gain access to the working capital and temporarily reduce the excessive surplus income of its international crown carrier (COTC) by up-grading the Harriestfield receive-only earth station into a two-way one;
- . install a high profile service to remote and northern regions comparable to the rural ones provided by various provincial governments;
- . prevent cross-subsidization between northern television stations and other telecommunications services and facilities;
- . purchase the Allan Park site selected by Bell Canada - perhaps even owned by that company or parties connected with the fully integrated common carrier;

- specify a 100-mile interference standard in order to lower the cost of land procurement, to create an explicit demarkation point between satellite and terrestrial microwave systems, and to retain its options concerning the ownership of key facilities;
- reinforce its position on the issue of key facility ownership and their management by a single organization;
- reinforce its sovereignty over northern Canada against encroachment by foreign and provincial governments;
- up-grade the national security capabilities in remote and northern regions; and
- use earth station construction to alter Telesat profitability and to assist with working capital and funds flow management.

(ii) The common carriers may have sought to:

- alter tariffs such that backhaul transmission charges from an existing earth station would be less than the cost of a separate facility;
- ensure that part of the traffic from the expansion of the French-language CBC network would be routed over the R.F. channel rented by them or the federal crown carrier (COTC);
- ensure that terrestrial tariffs were lower than satellite ones;
- guarantee the renewal of existing 5- or 10-year leases;
- have costly rearward links installed and sites selected other than gateway cities in order to favour the installation of multiple-beam system as the second generation of key facilities, to protect their service agreements with parent, associate and/or American common carriers, and to leave the telegraph common carriers on new long-line entrants with a competitive disadvantage;
- institute an industry practice whereby they would be the only party which economically operate the rearward links;
- protect the existing allocation(s) of Canadian military traffic; and
- secure the only licences for a line of microwave towers in the backhaul corridor from the earth stations to the main trunk lines.

3. CTS-1 or Hermes

(i) The federal Cabinet may have sought to:

- . compensate RCA Corporation et al for the loss of the prime Anik I contract;
- . complete the CTS Project regardless of the monetary cost in order to avoid investigation and political repercussion(s) of failure to honour a continental commitment;
- . ensure a preliminary allocation of 14/12 GHz frequency band(s) and orbits by the ITU and American agencies;
- . facilitate a return from the P.A.I.T. Program grants to RCA Victor Ltd.;
- . fill an r&d gap created by the traditional indifference and/or token efforts of the solitary, fully-integrated common carrier controlled by Canadian residents;
- . fund an alternate supplier of key facilities;
- . maintain a source of leverage, i.e. the threat of direct-to-home broadcasting, over common carriers and broadcasters;
- . pander to the common carrier insistence upon risk-free experimental proof of the reliability of 14/12 GHz frequency band key facilities and equipment;
- . prevent articulate criticism of the Anik I and related procurements by the science community;
- . reduce complaints that a central space agency had not been organized; and
- . utilize staff scientists and technicians and engineers left over from the Alouette-ISIS Program.

(ii) RCA Corporation may have sought to:

- . utilize space plant built in Canada in order to recover some of the capital costs and to gain a technological lead on the development of 14/12 GHz spacecraft and electronic equipment.

4. Completion of the Anik I-F-3

(i) The federal Cabinet may have sought to:

- . avoid a quantum increase in launch charges and use of an over-sized booster;
- . institute a standard operating procedure for the use of the latest technology in order to meet the highest standards set by the common carriers and mask any malfunction(s);
- . mothball the defunct Anik I-F-1 in order to avoid the adverse publicity of a total systemic failure; and
- . set the stage for new spacecraft procurement.

(ii) The Telesat management may have sought to:

- . launch before the performance guarantee of two years in storage expired;
- . place the Anik I-F-3 in a more benign and less costly (out-of-pocket expense) storage location;
- . provide additional interim R.F. channels for RCA Global and Alaska Communications Incs.; and
- . utilize the launch date and price quotation arrangements executed with NASA in the late 1960s.

5. Anik IA

(i) The federal Cabinet may have sought to:

- . allow the common carriers to conduct field trials before the Anik IIs were placed into service;
- . augment the size and make-up of the Canadian satellite fleet positioned inside the optimum space window;
- . eliminate criticism that there would be no follow up to the experiments on the Hermes;
- . mask the poor cost/benefit ratio(s), lack of technological transfers to second generation spacecraft, and lost marketing/manufacturing opportunities;
- . paper over inadequate project management during the CTS Project by the central agencies and/or communications department;

- provide another opportunity to evaluate 14/12 GHz frequency band performance;
- provide an opportunity to officially terminate the federal commitment to a major prototype program in the event of a launch failure or systemic malfunction of the only batch with a single spacecraft;
- repay RCA Corporation for the construction of a spacecraft factory in Canada, years of co-operation in scientific and military endeavours, the sale of its Canadian space division to Spar Aerospace Ltd., the interim leases on a full time and back-up basis, and/or discreetly piloting these arrangements through the American regulatory process;
- subsidize Spar Aerospace Products Ltd. and initiate an industrial rationalization;
- tap into another segment of the American military-industrial complex;
- terminate the search by the space division of the communications department and other federal agencies for a promotable r&d satellite development program; and
- utilize the extra booster power in the Thor-Delta rocket.

(ii) The Telesat management may have sought to:

- channel r&d lobbying efforts towards the 14/12 GHz technology but away from 300 MHz, 2.5 GHz or 12 GHz direct-to-home broadcasting satellites;
- occupy a less congested frequency;
- smooth out the funds flows and reduce the effects of a decline in depreciation allowances from the Anik Is; and
- secure greater financial independence from the common carriers.

6. Anik IB

(i) The federal Cabinet may have sought to:

- avoid the political repercussions of the discontinuation of northern services;
- provide long-line capacity for CATV network(s) and/or national pay television; and
- push Spar Aerospace Ltd. into projects with high risk but outside its traditional area of specialization so that it will become the prime contractor for an entire batch of spacecraft.

7. Anik IIs

(i) The federal Cabinet may have sought to:

- . anticipate RCA Corporation's withdrawal from the manufacture of communications satellites;
- . forestall any further lobbying for a direct-to-home broadcasting satellite and contain the reception of foreign programmes;
- . fulfill its portion of any understanding(s) reached before, during or after the passage of the Telesat Canada Act of 1968-69;
- . meet a condition for an expansion of its regulatory powers by nurturing a *Canadian family communication company*;
- . obtain full interconnection with the telephone common carriers;
- . protect the Canadian space window;
- . reduce over-crowding in the 6/4 GHz frequency band;
- . secure a veto over new system planning and revenue sharing outputs by the TCTS Board of Management;
- . set the stage for the full integration of wire, wireless, satellite and cable facilities by approved telecommunications common carriers;
- . subsidize Spar Aerospace Products Ltd. as an incentive for its reorganization as Spar Aerospace Ltd. and acceptance of the prime contract for the Anik IBs; and
- . utilize another package deal with Hughes Aircraft Company in order to boost the amount of Canadian content.

(ii) The common carriers may have sought to:

- . avoid accelerated payment penalties for a launch with less than 33 months notice;
- . formalize and legitimize the standard operating procedure on in-orbit spare units in order to ensure that satellite circuits remain more costly than terrestrial ones;
- . formalize, legitimize and expand their veto power over the location of earth stations;
- . negate the plans laid by the first communications minister and forestall the CBC and space division in the communications department from the promotion of a direct-to-home broadcasting satellite;

- . offer two-way video conference calls;
- . prevent an overload of telephone circuits and provide capacity for the potential growth of two-way information services;
- . react to the forecasted but delayed surge in computer communications traffic;
- . secure exclusive use of second generation satellite frequencies; and
- . take advantage of fixed-price contracts and a two-fold reduction in launch costs.

(iii) The Telesat management may have sought to:

- . use the line of least resistance to ensure organizational survival and/or network expansion.

(iv) The American aero-space manufacturer may have sought to:

- . lock the major customers into one package deal in order to maintain and/or strengthen its leading position in spite of the RCA Corporation's work on the CTS-1 and Anik IA-F-1.

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