TELECOMMISSION

Study 2(f)

Corporate Ownership and Integration in the Telecommunications Industry

The Department of Communications

Report of Telecommission Study 2(f)

CORPORATE OWNERSHIP AND INTEGRATION IN THE TELECOMMUNICATIONS INDUSTRY

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This Report was prepared for the Department of Communications by a project team made up of representatives from various organizations and does not necessarily represent the views of the Department or of the federal Government, and no commitment for future action should be inferred from the recommendations of the participants.

This Report is to be considered as a background working paper and no effort has been made to edit it for uniformity of terminology with other studies.

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I. INTRODUCTION

Efficient resource allocation, reasonable prices, response to consumer interests and innovation are aspects of the public interest in telecommunications[1]/. This study seeks to provide some of the basis for decisions as to how they might be achieved.

Before attempting to describe an industry for the purpose of competitive or related analysis, that industry should be defined. In the case of telecommunications several factors combine to make the dimensions of both product (or service) market and geographical market complex and unstable. For example, recent and well-known scientific discoveries have altered the relationship between artifically guided and unguided signal transmission techniques, between different forms of each of these two general techniques, and between computer and communications technology. Lower tariffs and improved international communications links are diminishing the significance of political boundaries. For some purposes the relevant industry definition is broad and for others it is narrow.

1/ The elusiveness of any detailed concept of "public interest" becomes apparent from even a superficial reading of government, industry and independent literature. Different groups have different priorities, all of which have some claim as being part of the national interest even though, in the context of telecommunications, they may not be entirely compatible. Among the priorities implicit in one or another of the studies on various aspects of communications are the following:

(a) keeping east-west transmission networks busy (i.e. communications among Canadians);

(b) retention of Canadian data and computer power in Canadian hands (sovereignity, growth, prestige);

(c) encourage computer utilization in Canada;

(d) retain Canadian talent;

(e) maximize Canadian ownership in Canadian production, especially in technologically advanced and rapid growth sectors;

(f) encourage efficiency and progressiveness in the use of Canadian resources;

(g) preserve competition where appropriate.

Other Telecommission studies deal in depth with industry ownership, structure and control problems of mass communications (e.g. broadcasting and cable television) and computer/communications systems. As to the latter, forward vertical integration by carriers into data processing was discussed by a Departmental paper published recently[2/] and will receive further attention at the hands of a comprehensive task force study of all aspects of computer use in Canada. Accordingly, this report will limit its focus to intercommunication transmissions (primarily wire) and to communications equipment manufacturing. Part II describes the main elements of those industries in Canada with details of corporate structure, ownership and control. Part III reviews some economic implications of monopoly, vertical and horizontal integration, and certain types of trade practices. Part IV examines briefly some of the broader features of designing an effective control structure to secure the public interest goals.

In a study designed to explore the need for public institutional capacity to deal with problems of competition and industry performance if, as and when they arise, there is a risk of creating an impression of opposition to the existing industry. It must be understood, however, that this study only seeks to identify and discuss issues in the abstract; and in any event it is not based on nearly enough detail to permit a judgment one way or the other on existing specific situations. Accordingly, no such judgment should be inferred. At the same time, free use has been made of available public information from both Canada and the United States to illustrate at least potential problems.

In considering the Canadian telecommunications industry from the point of view of optimum structure and performance in the future, one should retain full awareness of the pragmatic way in which the industry has developed over the last century to meet Canadian needs. Also, it is well to remember that economists, who have written most extensively on the subject matter of this study, tend to be cool toward monopoly, vertical integration and regulation. They would however be the first to agree that the science of economics is not capable of accommodating all the relevant values and aspects of the public interest in telecommunications. In fact, the Canadian industry is distinguished by a remarkable level of technical and economic achievement by international standards.

This report has been prepared largely on the basis of contributions and advice from the Department of Consumer and Corporate Affairs.

2/ Participation by Telecommunications Carriers in Public Data Processing (Department of Communications, Government of Canada, June, 1970). The present study ignores the difficulty of determining how much message switching is necessary to classify a service as "communications" rather than "data processing". The instability of industry definitions in this area should however be recognized.

II. INDUSTRY STRUCTURE AND OWNERSHIP

Telephone service in Canada is provided by enterprises each possessing a monopoly of telephone communications within a geographically restricted area. The Canadian switched network for voice communications is not co-ordinated by one body possessing ownership control. Both government-owned organizations and private enterprise participate in the industry. Many companies serve very small, usually rural markets, some offer virtually province-wide services, while the operations of one company extend over most of the area of the two largest provinces. Co-ordination and integration of the operations of the various telephone carriers has been achieved by means of agreements among the companies and by the influence of industry associations. In addition, government regulatory bodies supervise some of the activities of the telephone companies to protect the public interest.

Bell Canada, a widely held, Canadian-owned corporation is by far the largest participant in the industry. It obviously exerts a great influence over the quality of telecommunications in Canada. Bell controls virtually all telephones east of Manitoba, either through its own operations or through those of its subsidiaries. During the 1960's Bell Canada management carried out an active acquisition policy, buying many of the major independent companies in eastern Canada. Appendices A and B provide some information on the size and scope of the mergers. The only major company in eastern Canada not under Bell's ownership control is Quebec Telephone, which is controlled by General Telephone and Electronics of the U.S. (see Appendix C). In the case of Maritime Telegraph & Telephone, the Nova Scotian Government intervened and prevented Bell from exercising voting control despite its ownership of a majority of the equity shares.

Continental Telephone Corporation is the fourth largest of about eighteen hundred independent telephone companies in the United States. Its Canadian holdings are set out in Appendix D. The second and third largest American independents, United Utilities Incorporated and Central Telephone Company, have no significant Canadian holdings.

Appendices E, F and G indicate the relatively large size of Bell in the Canadian telephone industry. If statistics were given showing transmission traffic by company (e.g. number of calls, or volume of data transmission), Bell probably would loom even larger because its operations cover many areas with large populations and extensive commercial and industrial activities. Bell Canada owns 61.8% of all telephones used in Canada and 84.0% of all those used east of Manitoba. Bell, together with the other companies with which it is associated, accounted for 69.4% of Canadian telephones in 1968 and for 94.4% of the telephones in eastern

Canada. The market shares statistics in Appendix F do not have the usual significance of concentration statistics since the telephone companies are protected by government from direct competition. The ratios are useful, however, in indicating the bargaining power of the telephone companies as buyers and sellers in other markets (telephone equipment, for example) and in dealing with one another[3/].

None of the large telephone companies is involved solely in public telephone service. Technological developments have increased the variety of techniques of transmission and the applications of transmission services (i.e. the forms in which "messages" are sent, the speed at which they are transmitted, and the processing which they undergo). The long distance carriers are involved in television and radio program transmission and they variously offer radio-telephone and Centrex systems, TWX teletype and broadband services[4/]. While so-called "private wire services" currently constitute a small part of the telephone carriers' operations, this segment of business is expected to grow very rapidly. Growth in the transmission of data into and between computer facilities has contributed to the increasing importance of private wire services. In these services, the telephone carriers compete with the telegraph and cable companies (i.e. CN/CP). The share of the growing data transmission business to be obtained by the telephone companies will partly depend upon their continuing ability to adapt to the requirements of this traffic and on whether or not the carriers are allowed to integrate forward into computer services.

Bell Canada also wholly owns Northern Electric Company Limited, the major telecommunications equipment manufacturer in Canada[5/]. Until 1956, when a consent decree in the United States forced certain changes in policy by the Bell System, Western Electric, the manufacturing arm of the System, held a large percentage of Northern equity. In 1957 most of this share was sold to Bell Canada. The remaining 10% held by Western was purchased by Bell in 1962.

3/ In activities which are regulated, of course, the bargaining power of a carrier may be offset by the regulatory body.

4/ Exhibit B6-26, introduced by Bell Canada at the 1969 Rate Hearings Before the Canadian Transport Commission, contains a description of the telecommunications services offered by that company.

5/ Northern has incorporated Micro-Systems International Limited. This company is involved in the research, development and production of micro-electronic circuits and hopes to become a major world supplier particularly in the telecommunications sector. See Financial Post, Dec. 6, Dec. 20, 1969.

Bell Canada has maintained a Service Agreement with American Telephone and Telegraph Company of the United States under which it obtains the results of telephony research, engineering assistance, non-exclusive patent licenses and other benefits[6]/.

In late 1970 the large Northern Electric R & D establishment, previously influenced and partly financed through Bell-Northern agreements, was separately incorporated as Bell Canada-Northern Electric Research Ltd. The new company is 51% owned by Bell and 49% by Northern.

Bell Canada's ownership of Northern is important to the telephone company's operations. Northern produces a complete line of transmission equipment, telephone apparatus and switching and terminal equipment[7]/. While Northern enjoys a captive market in Bell Canada, its sales are not restricted to Bell or Bell-owned telephone companies. Non-Bell Canada sales, including exports, account for almost half of Northern's revenue from communications equipment. Since the B.C. market is largely closed to Northern, the companies operating on the prairies appear to be the largest domestic market outside Bell territory. Northern's major rivals in the communications equipment market are foreign manufacturers (such as Siemens, Ericsson, Plessey), Canadian subsidiaries of Automatic and Lenkurt and, for some equipment, the large, diversified electrical goods manufacturers.

The second largest telephone company, British Columbia Telephone, and Quebec Telephone are both controlled by the second largest U.S. telephone company, General Telephone and Electronics Corporation, through its holdings in the Anglo-Canadian Corporation. In the United States, General Telephone has been active in acquiring companies and diversifying its operations. Not only has it taken over other independent telephone companies and telecommunications equipment manufacturers, but it has also integrated forward, moving into data processing[8]/. Lenkurt and Automatic Electric, both equipment manufacturing subsidiaries of General Telephone, have established plants in Canada. B.C. Telephone purchases most of its requirements from these affiliated companies but Quebec Telephone, a more recent acquisition of General Telephone and Electronics Corporation, does not seem to have acted as a "captive market".

6/ Further information about this Agreement was given at the 1966 rate hearings before the Board of Transport Commissioners.

7/ See Appendix B. Northern also produces non-communication wire and cable and has a wholesaling operation.

8/ See Business Week, Nov. 22, 1969, p.97.

Quebec Telephone is the only major telephone company which has entered into the computer field. It currently offers bulk processing services and is considering provision of time-sharing services[9].

Each of the three prairie provinces has set up a publicly owned telephone system. None of the organizations has a captive supplier although the provinces have used their purchasing power to persuade equipment manufacturers to set up plants in their territory. In addition to these large companies, there are a considerable number of small independent operators and some municipal companies. About 2,000 telephone companies exist in Canada[10]. Most are members of the Canadian Independent Telephone Association, which represents their common interests. Other associations which include small companies in their membership are the Quebec Independent Telephone Association, the Ontario Telephone Association, and the Saskatchewan Association of Rural Telephone Companies.

Co-ordination and integration of the networks controlled by the various organizations is essential for long distance telephone, television and radio transmission, data and defence communications. Two voluntary associations are the vehicles by which the major telephone companies agree on the technological and financial considerations required for effective integration of the Canadian network. The Trans Canada Telephone System, established in 1931 and composed of eight companies, deals with matters affecting long distance communications[11]. Working on the basis of unanimous agreement, the system is set up so that each member company provides the plant within its own territory (and deals with other companies in the territory) and shares in the revenues from communications carried into, out of or across its territory. The Telephone Association of Canada includes the eight TCTS members and five of the larger remaining telephone systems. It was formed in 1921 "to promote co-operation and the interchange of technical and operating information within the telephone industry"[12].

9/ All the major telephone carriers possess substantial computer capacity which is used for internal purposes at present. Bell Canada has also indicated interest in offering data processing services.

10/ D.B.S. stated that the total number of telephone companies which could have returned its questionnaire for 1968 (for Telephone Statistics) numbered 2,067.

11/ See Appendix H for list of members of the Association.

12/ See The Telephone Association of Canada, Canada's Telephone Industry in Perspective, 1965, p.9.

Canadian Overseas Telecommunication Corporation, a Crown corporation established in 1949, is responsible for maintaining and operating external telecommunications services by cable, radio-telegraph and radio-telephone and any other means. The corporation is involved in a Commonwealth cable system and communications satellites, for which it has built ground receiving stations as part of the Intelsat system. It is also a designated entity in Intelsat.

Nine telegraph and cable companies operate in Canada[13]/. However, the joint venture CN/CP Telecommunications is the most important organization in domestic record communications and its role is likely to expand as data transmission increases in volume[14]/. It offers Telex teletype and Broadband Exchange Service, which is a voice-data service inaugurated in 1967. Approximately 75% of CNT and CPT business involves data transmission. In 1969, CN and CP each purchased 25.5% of the equity of Computer Sciences (Canada) Limited (CSCL) from Computer Sciences Corporation of Los Angeles. The U.S. company holds a minority equity interest in CSCL and also controls Computer Sciences Leasing Canada Company. The following information on the American company is derived from Standard and Poors, Corporation Records, p. 4083:

> Company provides industry, scientific institutions and government agencies with computer services including consultation in the use of computers, business and scientific problem analysis and data processing, computer systems programming, systems and project management and the use of a Univac 1108 computer installed in May, 1967. Among services provided is an on-line accounting service to financial institutions from its Huntsville, Alabama computer facility. In January, 1969, Co. was planning to establish a transcontinental network of computer time-sharing centres. In fiscal 1968, about 85% of service revenues were derived from government contracts and 15% from industrial and commercial customers. Company has offices in a number of U.S. cities, in Alberta and Belgium. Among affiliates is Computer Sciences Canada Ltd. (49% owned), Ottawa, Ontario, with offices in Toronto, Calgary and Vancouver; provides computer programming and analysis services and operates a computer center at Calgary.
> American Co. incorporated in Nevada, April 16, 1959.
> Employees, May 30, 1968, 3,000
> In February, 1969, reduced interest in Computer Sciences Canada Limited from 100% to 49% by sale of 25.5% each to Canadian Pacific Ry. Co. and Canadian National Ry. Systems.

13/ Telegraph and Cable Statistics, (D.B.S. 1968).

14/ CN and CP both provide public message service; CN has telephone systems in remote areas as well as its telegraph operations. Northern Alberta Railways and Ontario Northland Railway both earn some revenue from telegraph and cable services. CP has an investment in the former company.

As of August 1, 1970, the private wire services as well as the public message services of federally regulated telecommunications carriers fall within the jurisdiction of the Canadian Transport Commission. The major companies subject to its jurisdiction are CNT, CPT, Bell Canada and British Columbia Telephone[15]/. The Commission makes periodic reviews of the financial accounts of the carriers, hears submissions on tariff and rate changes by the companies and others and makes decisions binding on the companies. Provincial governments supervise the activities of the other carriers.

Equipment manufacturing and data processing activities of carriers, of course, are not regulated.

15/ Provincial governments, the CRTC and the Department of Communications have also been concerned with the activities of these companies. See financial Post, January 10, 1970, for two articles on Bell's dealings with government and possible changes in Bell corporate structure.

III. COMPETITION AND TELECOMMUNICATIONS

A. Aspects of Monopoly

To an economic theorist perfect monopoly is a situation where only one seller exists in a market. Buyers have no real alternative to paying his price. There are no competitive forces to drive prices down toward costs or to stimulate innovation. There are no forces of dynamic change. Price and output are set at levels which will result in maximum profit.

While perfect monopoly is more a theoretical model than ever an actual market condition, there are market situations where one firm is so dominant as to enjoy most of the benefits of monopoly power16/. Accordingly, Canada's Combines Investigation Act defines the monopoly offence in section 2(f) by reference to "a situation where one or more persons either substantially or completely control throughout Canada or any area thereof the class or species of business in which they are engaged". In other words, the economic evil depends on relative size in a market rather than absolute size. A very small firm may be a monopolist and a very large one not.

It is possible to conceive of a private unregulated monopoly that is not harmful to the public interest, and monopoly only becomes offensive under the Combines Investigation Act if the persons in control "have operated such business or are likely to operate it to the detriment or against the interest of the public, whether consumers, producers or others". Where, for example, a monopolist creates unnecessary barriers to entry, or engages in exclusionary practices such as predatory pricing, his conduct would be offensive on the grounds of economic efficiency alone since he might have been challenged by a competitor who could give the consumer a choice and create pressures to induce better quality, lower prices and better response to consumer demands. Insofar as the "optimum" can be defined by reference to the wants of people, then, economists have long considered that competition (in the sense of effective consumer alternatives, rather than commercial atomism) is generally more likely to result in optimum long-run allocation of total productive and distributive resources.

Monopoly pricing may result in prices that are too low rather than prices set to maximize short-run profits. The social function of price and private profit is that by their rising in the short run as a

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16/ Some economists also describe oligopolistic interdependence as "shared monopoly" or "group monopoly".

reflection of market demand, more resources will be shifted to meet that demand. If a monopolist prices his product just low enough that outside investment is not attracted into the industry, it is possible that the present value of the firm to the owners will be maximized. Assuming, apprehensively and statically, that no extra efficiencies could be introduced into the industry by innovation or otherwise, the possibility of future competition has then only limited capacity to force prices down toward costs and thereby to pass economies on to consumers. In short, the essential feature of "monopoly price" or "monopoly profit" is not its absolute dollar size, but rather the manner in which it is set or arrived at.

"Natural monopoly" is the economist's term for an industry where technological and market imperatives are such that serious resource misallocation would result from any market structure other than a single firm. This is the case where the absence of any relevant limit to economies of scale results in low unit costs which cannot be duplicated by new and smaller entrants. In these types of cases, of which the telephone industry and energy supply are the most familiar, the monopoly is usually subject to direct public control over certain business decisions and other aspects of industry performance. In the case of the telephone industry the tendency to natural monopoly turns largely on economies of scale and the wasteful duplication in local exchange and other facilities that would need to be installed to create effective competition. This does not prevent the growth of separate telephone monopolies in local areas and regions, and the requirements and standards of national interconnection are independent of the question of corporate ownership.

It is becoming less valid to regard voice communications as the only relevant service dimension of the industry. CNT and CPT provide, on a joint venture basis, telegraph and various data transmission services. CNT also provides telephone service in certain parts of the country, and Quebec Telephone offers a limited amount of public message telegraph service as an adjunct to its telephone service. As the telephone companies move increasingly into the data transmission field rivalry will emerge between the carrier systems. Moreover, it is conceivable that cable systems will become another substitute for some types of transmission. The debate over what constitutes "communications" and what constitutes "data processing" is a new development in the issue of natural monopoly versus competition in telecommunications. An issue in the satellite debates involved the corporate structure and ownership of the system and competition among alternative means of transmission.

B. Vertical Integration

The following discussion adopts the conventional terminology used in competition theory and analysis. Accordingly, the word "vertical" is used to describe economic arrangements between companies standing in a supplier-customer relationship, or activity by one company at more than one level in the production-supply chain. "Horizontal" is used when companies perform similar functions in the production or distribution of comparable goods or services[17]/. The word "integration" is used to mean a formal, structural corporate interest through ownership of shares or assets. In other words, it connotes something more than an informal or even a contractual arrangement between two companies.

In general, vertical integration has the following implications for competition:

1. By tying a customer to a supplier it forecloses the competitors of either party from a segment of the market otherwise open to them.

2. It tends to raise the absolute cost barriers to entry into the industry.

When one of the activities is regulated, of course, the central problem tends to become the extension of (regulated) monopoly power into unregulated markets, with all the attendant control difficulties.

Vertical integration can, however, lead to greater efficiencies through pooled management talent, lower production costs, more efficient distribution, and so on. Therefore, the economic desirability of vertical integration depends upon the facts of each particular case.

Issues of both forward and backward vertical integration are becoming common in the communications and information industries. Should cable companies be involved in program content? Should carriers be permitted to sell either computer processing or software services, or both? Should carriers remain in an integrated relationship with communications equipment manufacturers?

17/ The recent Departmental paper, Participation by Telecommunications Carriers in Public Data Processing, used the terms in a different sense to facilitate that part of its discussion which was based on the hypothesis that carriers become involved in data processing. The paper used "vertical" to denote carrier involvement through a legally and financially distinct corporate subsidiary, and "horizontal" to denote involvement through an expansion of the carrier company's direct activities.

Dr. M.R. Irwin, who has written extensively on this latter problem, summarized it as follows[18]/:

> "... vertical integration is the critical structural trait of the industry. Once integrated, the carriers take the bulk of their equipment in-house, with no competitive bidding; customers are prohibited from attaching equipment or systems to the local or toll telephone network; and customers must lease both apparatus and communication channels from the industry as a package. While the foreign attachment tariff has been modified to some extent when the customer leases his own circuits, both tariffs are rigorously enforced on the dial-up network. The carriers defend the structure and practices of the industry by arguing that (1) vertical integration results in equipment reliability, quality control, and a systems approach unmatched by alternative industry structures; (2) their purchases from supply affiliates are dictated by cost efficiencies unmatched by independent suppliers; and (3) the carriers must retain ownership of equipment and apparatus in order to ensure the quality and integrity of the nation's telephone network. In short, the structure and practices of the carriers allegedly redound to the benefit of the consumer in terms of optimum quality, cost, and service."

Specifically, the possible dangers of a carrier-equipment manufacturer tie are as follows:

1. High supply costs, often resulting partly from cost-plus pricing which relieves the manufacturer of pressure to keep production costs low, may be forwarded as part of the carrier's rate base. This has particular significance in a capital intensive industry.

2. Competition in the equipment manufacturing industry, which may be helpful to stimulate innovation, could be distorted or stifled by:

   (a) exclusive dealing by the carrier, which may result in sub-optimal output for independent manufacturers, with resulting high unit costs and prices;

   (b) non-competitive profits from carrier business may give the manufacturer a stronger competitive position with respect to other customers in that he can afford to meet or beat any independent's bid;

   (c) interconnection and foreign attachments policies by the carrier may favour its own manufacturer.

18/ Irwin, "Vertical Integration and the Communications Industry : Separation of Western Electric and AT&T", (1969) 3 Antitrust L. & Econ. Rev. 125, 131.

3. Determination of the rate base, rate structure, operating expense and rate of return for regulatory purposes is made more difficult and arbitrary, and some need arises for the regulatory body to attempt to assess the performance of the manufacturer[19].

For some years now an inquiry has been in progress under the Combines Investigation Act relating to the manufacture, production, distribution, purchase, supply and sale of communications systems, communication equipment and related products[20]. As reported by the Director of Investigation and Research[21]:

> "The inquiry is concerned primarily with: (1) the danger that the expansion of its regulated telephone business through the acquisition of other telephone companies may spread the monopoly power of Bell Telephone in non-regulated areas by enlarging the captive market available to Northern Electric, its wholly-owned subsidiary; (2) the danger that the monopoly power of Bell Telephone may spread in the non-regulated area through diversification by Northern Electric or the acquisition of other non-regulated suppliers while Bell Telephone continues to be in a position to provide such suppliers with a captive market; and (3) the danger that the monopoly power of Bell Telephone may spread by the control it is able to exert over the equipment which may be attached to its "electronic highways".
>
> "The inquiry was instituted as a result of the relatively recent acquisition by Bell Telephone of all the important telephone companies in eastern Canada."

Since 1912 Bell has been supplied by Northern under the terms of a supply contract. Completely revised in 1939 and amended in other respects since, the contract requires that Northern stock and distribute materials for Bell and that Bell is entitled to Northern's goods and services at prices no higher than Northern's prices to its most-favoured

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19/ The Canadian Transport Commission, and the Board of Transport Commissioners before it, has reviewed aspects of Northern Electric's performance in Bell rate hearings. Likewise, the FCC reviews Western Electric's prices and profits in rate cases involving AT&T and the associated companies.

20/ The available detail on this investigation appears in Report of the Director of Investigation and Research, Combines Investigation Act, for the year ended Mar. 31, 1968, pp. 54-55.

21/ Loc. cit.

customers. This supply arrangement, typical of vertical ties in the telephone industry, has frequently been challenged before the regulatory body by interests who feel that it has a severe impact upon the competitive situation in the equipment manufacturing industry, with ultimate effect upon the value being received by telephone users.

Backwardly integrated telephone companies doubtless make some effort to compare prices and quality among equipment manufacturers before making major purchases, and to ensure that the costs being incurred by their manufacturing subsidiaries are as reasonable as possible. However, many factors favour their own manufacturers in the short term, and it would not be surprising if the tied manufacturer received preferential treatment even within ostensibly competitive situations. For example, it might be given a special opportunity to meet a lower bid submitted by another company.

At a rate hearing in 1950 before the Board of Transport Commissioners, three of the allegations concerning a supply contract between B.C. Telephone and another subsidiary of Anglo-Canadian Telephone Company were as follows: (1) that substantial sums paid out to holding companies were improvident; (2) that dividends were excessive, having regard to the enjoyment of monopoly and protection through regulation by the Board; and (3) that the telephone's company's relationships with other companies in the group were not conducive to economical operation and had a further effect of lessening its revenue. The Board came to the conclusion that the bulk of the revenue of the supply company was derived from the telephone company and that the expense thus incurred by the telephone company was excessive. The Board was of the opinion that it was not empowered to deal with the rate of return or the indirect benefits of companies affiliated with those over which it had jurisdiction, beyond satisfying itself that a reasonable payment only was being made by the telephone company for the services required. Nor did the Board think it to be within its powers to direct the telephone company to withdraw from the supply contract and establish its own facilities. The Board said that its concern was merely that the resulting rates for telephone service should be fair and reasonable. The Board concluded that the supply contract added an additional cost to the telephone company of approximately $117,000 which should not be taken into consideration as an item of expense to be borne by the telephone company's subscribers, and it ordered this amount to be deducted from the requirements of the telephone company that would be considered for rate fixing purposes.

In 1953 the Board, in the course of further hearings, considered the matter again. It considered it advantageous for the telephone company to have strong connections which would enable it to obtain needed equipment and supplies as and when required, particularly under the "sellers' market"

conditions which had prevailed during recent years and were then still prevailing. The Board considered that the supply contract helped to put the telephone company in this position. The Board was nevertheless of the opinion that, having regard to the affiliated relationship of the telephone company and the supply company, it was essential that their dealings one with the other be fully disclosed to the Board and that the prices paid by the telephone company be not more than were reasonable for the services rendered.

The Board then referred to its previous disallowance of $117,000 and noted that, subsequently, the charge of 3% on aggregate annual purchases in excess of $1,000,000 provided for in the supply contract had by mutual agreement between the companies been reduced to 1-1/2%, thereby effecting savings of $184,299 and $253,338 in 1951 and 1952 respectively. Referring on this occasion to a brief presented to the Board on behalf of a local association, the Board remarked that it had also been established that the supply company gave more favourable terms to the telephone company than to any of its other customers. The Board noted the complaint that the telephone company (through the supply company) purchased large quantities of telephone equipment and supplies from another affiliated company at what had been described to the Board by the complainants as non-competitive or monopolistic prices. "Whether or not a monopoly exists in the field of manufacture, distribution or supply of telephone equipment and supplies", said the Board, "is not a matter for determination by this Board nor is a decision on that question necessary for the purposes of this case. Moreover, even if there is such a monopoly, the Board has no reason to conclude that the monopoly would cease to exist or be changed by a refusal on the part of the company to enter into the Service and Supply Contracts or either of them; or that the Company could, by refusing to enter into these contracts and seeking to obtain necessary service and supplies by other arrangements or from other sources, obtain such services and supplies at less cost on the whole than it does under the existing contracts". The Board then stated that it had carefully considered the supply contract and the evidence and exhibits relating thereto and was satisfied that the prices paid by the telephone company under that contract "are not greater than reasonable and should on the whole be allowed as legitimate expenses".

It will be noted that the alleged combine differed from the usual pattern. It was not alleged that manufacturers or suppliers had agreed to limit production or fix prices; but rather, in effect, that the related companies, enjoying a public utility monopoly within the area of their operations, had agreed among themselves that telephone equipment would be manufactured or supplied within the group at non-competitive prices.

The Bell-Northern Supply Contract came under extensive review in the 1966 rate hearings before the Board of Transport Commissioners. The relevant Board conclusions were as follows22/:

> " On the evidence, the Board finds that, at this time, Bell's investment in Northern Electric is not in fact prejudicial to the interests of Bell's telephone customers; that the prices paid by Bell to Northern Electric are as low as or lower than going prices; that Northern's overall rate of return does not appear to be excessive in comparison with the general average of other manufacturing enterprises of a similar nature and in comparison with the rate of return earned by Western Electric in the United States; that the rate earned by Northern on its Bell business is lower than the rate of return earned by Northern on its non-Bell business; that the rate of return earned by Northern on its Bell business is not unreasonable and not much higher than the rate of return earned by Bell as a utility; and that the Board is not of the view that Northern's rate of return on its Bell business should be limited at this time to the rate of return which the Board finds reasonable for Bell."

The conclusion that "the rate of return earned by Northern on its Bell business is lower than the rate of return earned by Northern on its non-Bell business" was reviewed for the judgment on the 1969 rate hearings with the assistance of accountants, and the Canadian Transport Commission concluded "that on the average the situation remains substantially as described in the 1966 Judgment"23/.

Even with the assistance of such comparative statistics as are available24/, analysis of Northern's performance is immensely difficult. Given the structure of the industry, it may say little about the desirability of Northern's prices to Bell to compare them to non-Bell business, let alone to compare its rate of return to Western Electric's rate of return on capital. Depending upon the goods supplied, a higher rate of return on Bell business might conceivably be justified from time to time and, in any event, simply comparing rates of return in terms of being higher or lower may not be meaningful. Similarly, we cannot judge innovative strength simply by recalling that the transistor and several other truly remarkable inventions have come from the Bell system. Remarkable innovations have also come from non-integrated communications equipment manufacturers such

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22/ 56 B.T.C. 732 (May, 1966). See also the conclusions on the B.C. Telephone hearings: 56 B.T.C. at 518-21.

23/ 59 R.T.C. 734 (September, 1969).

24/ Regulators have few independent sources of price and cost information for the assessment of the performance of integrated manufacturers. The high rate of new product introduction makes comparison even more hazardous.

as Hughes and Lockheed. The question is whether better performance might not have resulted from a different industry structure. Comparative data are neither available nor possible. The decision must turn on something else.

It is, too, an oversimplification to discuss "equipment manufacturing" without recognizing the different circumstances applying to the research, production and supply of each of the various components. These components include telephone sets and other terminal devices, cable, wire, microwave equipment and switching gear.

Even recognizing that the reasonableness of Northern's costs are at least as significant as its profits, the difficulties of attributing costs are formidable. This difficulty, of course, also applies to rate setting for an enterprise which is engaged in both regulated and unregulated activities. At the 1969 Bell rate hearing there was a lack of hard evidence that unregulated services were not in any degree subsidized by revenues from regulated services. Any such subsidization would permit unreasonably low prices to be charged for the unregulated services, in which event telephone users would pay the subsidy and also, as members of the public, lose by means of the resultant injury to competition in the unregulated activity. The Commission conclusion was "that it would be in the public interest for the Commission to investigate the feasibility of carrying out cost and revenue separations between regulated and unregulated services, and the methods and procedures appropriate for determining such separations; and accordingly, Bell is hereby directed to undertake forthwith a study of such methods and proceedings, and report thereon to the Commission within twelve months"25/.

In its December, 1970 judgment on the most recent Bell application for rate increases, the Canadian Transport Commission expressed concern that in 1968 (the most recent figures available) Northern's rate of return on its Bell business rose above that on its non-Bell business. The Commission warned26/:

> "... If the reports for 1969 or 1970 reveal a higher rate of return on Bell business than on other, full justification will be required from Bell that it could not purchase part or all of its supplies from other suppliers at cheaper prices than those charged by Northern".

Nor was the Commission impressed with Bell's return on its investment in Northern.

25/ 59 R.T.C. 734 (September, 1969).

26/ Judgment, para. 30(a).

Perhaps a brief discussion of two examples of vertical integration will provide a useful introduction to the examination of the social implications of the fore-and-aft integration of the common carriers in the Canadian context. In the first place, where all production stages are subject to competitive conditions, there is a market test as to the net social benefit derived from vertical integration[27]. If there are real economies realized by integration, so that the integrated firm enjoys a cost/product advantage, market forces will compel a change in corporate structure. There are a number of potential sources of economies of integration: engineering economies resulting from integrated systems, continuous flow production and so on; economies achieved by improved and increased communications between purchaser and suppliers, thereby reducing expenses associated with the marketing of products; economies due to the elimination of risk and uncertainty about the availability of supplies and prices; economies in the execution of research and development activities due to the freer exchange of information. If such economies are significant in fact, then social welfare is increased when integration occurs and the cost savings are passed on to consumers.

Fritz Machlup and M. Taber have argued that in the opposite situation where natural monopolies stand in a vertical relationship with one another, and other things are equal, it is more efficient to place the different stages under common control and then regulate so that the behaviour of the complex is compatible with the social interest[28]. Insofar as it is true that nice, neat markets exist (i.e. low cross elasticities of supply/demand), then a strong case can be made for integration.

The situation involving integration of a telecommunications carrier backward into the equipment manufacturing industry and forward into the computer processing industry stands somewhere in between the two rather simple cases described above. A number of complications must be taken into account in the telecommunications case:

> "By combining under single ownership the control of development, manufacturing and distribution of, as well as complete control of virtually the entire market for, telephone equipment used in the United States, the defendants have fixed the types, quantities and prices of telephone purchases and sales and have controlled the plant investments and operating expenses on the basis of which federal and state regulatory authorities must fix rates to be charged subscribers for both local and long distance telephone service. The absence of

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27/ This statement is not strictly true, but it is not seriously misleading in this context. See literature on welfare economics for qualifications.

28/ "Bilateral Monopoly, Successive Monopoly and Vertical Integration", Economica, N.S., V. 27, May, 1960, pp.101-119.

effective competition has tended to defeat effective public regulation of rates charged subscribers for telephone service since the higher the prices charged by Western for telephone apparatus and equipment the higher the plant investment on which the operating companies are entitled to earn a reasonable return. The non-competitive prices of Western's manufactured products have the dual effect of increasing manufacturing profits and of raising telephone operating profits by inflating the rate bases of the Bell operating companies. Both increases accrue to the benefit of AT&T. The difference between the apparent and the real costs of telephone service represents hidden profits which are beyond the reach of public regulation"29/.

A case of possible relevance to the Canadian situation was fought out some years ago in the United States. It has been conveniently summarized by Phillips as follows30/:

"On January 14, 1949, the government filed a civil antitrust suit against AT&T and Western Electric, charging that the companies had engaged in a continuing conspiracy to monopolize the manufacture, distribution, and sale of telephones, telephone apparatus, and equipment, in violation of sections 1 and 2 of the Sherman Antitrust Act. The government asked that: (a) Western Electric be separated from AT&T and dissolved into three competing manufacturing companies; (b) Western Electric be required to sell its 50% stock interest in Bell Labs; (c) AT&T, Western Electric, and Bell Labs license their patents to all applicants on a non-discriminatory and reasonable-royalty basis; and (d) the Bell operating companies be required to buy all equipment and supplies under competitive bidding.

...

Seven years later, on January 24, 1956, the suit was settled by a consent decree. AT&T and Western Electric were required to grant licenses to anyone under all existing and future patents. Virtually all patents issued prior to the date of the decree were to be licensed royalty-free; patents issued subsequent to the date of the judgment were to be licensed at reasonable royalties. The defendants were not required, however, to grant any patent license unless the licensee grants to the Bell System licenses it wants for use in its regulated

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29/ United States vs Western Electric Company, Incorporated, and American Telephone and Telegraph Company, Complaint filed January 14, 1949. Statement by the Attorney General.

30/ Phillips, The Economics of Regulation (rev'd ed., 1969), pp.671-73.

> communications business, subject to reasonable royalties. Western Electric was precluded from manufacturing and selling equipment not of a type sold to the telephone operating companies of the Bell System, except for manufacturing equipment or providing services for the government. Western Electric also was required to maintain cost accounting methods consistent with generally accepted accounting principles and to disclose its manufacturing costs. Finally, AT&T and its operating companies were enjoined from engaging in any business other than furnishing common carrier communications services and incidental operations (such as the directory advertising business)."

The decree has not been uniformly welcomed31/. Some feel that not only does the AT&T-Western tie induce further backward integration by other telephone companies, but that the consent decree specifically does two unfortunate things: it insulates Western from competition and prevents Western from being a potential competitor in related electronics markets.

Either the situation in the telephone industry can be left as it is, or the vertical relationships can be dissolved, or a regulatory body can seek to preserve the benefits of vertical integration while at the same time attempting to induce or preserve the advantages of competition in the equipment industry.

Many, though not all, carrier arguments against dissolution are predicated on short-term economies resulting from the existing manufacturing industry structure. As such, they largely beg the issue of whether a changed industry structure is in the long range social interest. But dissolution of any historic tie would be a wrench to the industry, and would be neither simple (especially in the case of research laboratories) nor obviously effective with respect to competition in equipment supply. The Rostow Task Force, due to only limited evidence one way or the other and to time constraints, left the question of dissolution open. It did, however, in the American context say that "the question of dissolution aside, we favour access by outside suppliers to the widest extent feasible... We believe that public policy, and enlightened company policy, should seriously explore every possibility of enlarging opportunites for competitive access to the market for communications equipment, beyond the present level of outside market procurement by the carrier affiliates"32/. However, in the Canadian context a vertical relationship may

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31/ Note, for example, the conclusion of Irwin and McKee, "Vertical Integration and the Communications Equipment Industry : Alternatives for Public Policy", (1968) 53 Cornell L. Rev. 446, at 457:

> "It is our view that if the equipment market were opened to effective competition, the innovative process would be greatly encouraged, and ultimately consumers would reap the benefits of cheaper and better services".

32/ Final Report of the President's Task Force on Communications Policy, (Washington, 1968), Chapter 6, p.41.

be important to the development of a manufacturing enterprise of sufficient size to undertake R&D, to be efficient in the production of domestic requirements, and to be competitive in world trade.

So far as changes within the existing North American industry structure are concerned, none of the choices is perfect and most are hampered by an inability to identify and evaluate costs. Few seem interested in following the recent decision of the California Public Utilities Commission to limit the earnings of the affiliated manufacturer supplier to the level set for the utility[33]/. A requirement of competitive bidding, without more, would accomplish little because it would be very difficult to enforce and would usually favour the affiliated manufacturer in any event, due to the persisting advantages of scale[34]/. It is possible, however for a regulatory agency to take a more active role in the area of procurement policy and the availability of research, in order to improve performance in the equipment industry.

Forward integration by the telecommunications carriers into the computer utility field could well aggravate further the existing problems of backward vertical integration. Companies hoping for an easing of foreign attachment tariffs, or companies in the terminal equipment business, would be understandably concerned about the possible expansion of existing captive markets[35]/. If there are

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33/ Manufacturers do compete, at least in some respects, in a dynamic and unregulated market. The non-regulated manufacturers, domestic and foreign, might gain an undue advantage over a regulated manufacturer in domestic or foreign markets.

34/ It has been suggested that even if the equipment market were 'competitive', carriers would still seek such assurance of supplier credibility (design capability, reliability concerning specifications, delivery schedules and long-range availability) as to disqualify most small or new firms: Borchardt, Structure and Performance of the U.S. Communications Industry (Harvard University, 1970), p.109.

35/ Decisions on the foreign attachment and interconnection issues involve consideration of some difficult questions. What should be the limit of the 'natural monopoly'? At what point does competition in marginal or fringe sectors threaten the carriers' overall responsibility for co-ordination and effective operation of the system? Much of the equipment purchased by carriers consists of attachments used by customers of the utility which could have been purchased and installed by the users themselves. Under what circumstances would the social good be advanced by permitting user purchasing? Borchardt, op. cit., p.107 points out, "For example, the attachment of customer-owned hardware in the case of residential telephone service poses questions of equipment maintenance quite different from those presented in the case of private communications systems, operated by larger business concerns".

economies of integration and if there are important economies of scale in the manufacture of some types of equipment, then, superficially at least, arms length dealing between telephone companies and their integrated manufacturers might be a feasible solution.

In Canada, if both the telephone carriers and the telegraph carriers are permitted to integrate forward, they will rival each other for straight data transmission business and for shared time data processing business. The computer manufacturers will also become a force in segments of the market. Relationships among firms in telecommunications will be complicated indeed. In the case of Bell Canada, for example, major computer manufacturers would at the same time be sellers to Bell (and to some possible extent rivals of Northern), customers of Bell (for leased wires and transmission) and rivals of Bell (as computer utilities). The basic oligopolistic nature of the market plus the impact of these complex buyer/seller links would constitute a complex regulatory problem.

The general questions arising from vertical integration by a regulated monopoly, mentioned earlier, apply also in the case of forward integration. However, in the case of computer services there is an important difference in perspective - sovereignty issues and the need to ensure east-west communications play a larger role. In the telecommunications equipment market Canada has at least one long established company, domestically owned, which probably is sufficiently large and diversified to reap all significant economies of scale in production and R&D. The computer services industry, however, is new and growing rapidly. Capital requirements are large and getting larger, and computer systems are less favourably received on the Canadian stock market then they once were. Some large American corporations are leasing lines and integrating Canadian operations into North American computer systems with the raw computer power and data banks located in the United States. Analysts predict that the computer service industry will not long continue as a highly competitive sector with easy entry and exit and many competitive small firms, that a "shakeout" is inevitable, and that advantages of large size will become increasingly important.

C. Horizontal Integration

Horizontal integration between competitors or potential competitors, while generally easier to analyze than either vertical or conglomerate integration, nevertheless still requires an investigation into the particular facts of each case to determine whether it is desirable or undesirable. This is because horizontal integration can result in economies of scale in production or distribution. It can also, however, eliminate or anaesthetize competition.

In the context of the telephone industry a slightly different risk is present. As a seller Bell is for most purposes a monopolist, but as a buyer it is an oligopsonist. In other words, while absorption of local telephone monopolies does not injure competition in the transmission business, it may well affect competition in equipment manufacture and supply. This is particularly true where a vertical tie exists36/.

As acknowledged above, however, the growth of video, data and private wire needs makes it decreasingly valid to talk of "telephone" or "telegraph" rather than at least "transmission" as the industry in which telephone companies participate. Should microwave and satellite transmission be reserved for the existing common carriers because of the rising degree of interchangeability, or cross-elasticity of demand/supply, between the modes? Are there peculiar economies in common ownership and control? Is common ownership essential for the preservation of the principle of cross-subsidization between telecommunications services and if so, is that principle worth preserving or might some other subsidy technique be preferable? What are the political implications of common ownership and what would be the effect on innovation37/?

Diversity has been an important principle underlying U.S. decisions in these matters. It was manifested in 1913 when AT&T was induced to divest itself of its recently acquired interest in Western Union. It underlay the "Above 890 Decision" by the FCC in 1959 whereby

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36/ This problem is currently being litigated in the United States in a suit brought by ITT against GT&E as a result of the latter's acquisition of the Hawaiian Telephone Company, a former equipment customer of ITT.

The Act incorporating Bell, as amended, gives the Company the "power" to manufacture telephones and equipment related to telephone systems. It also gives "power and authority" to purchase connecting telephone lines. Either of these powers can be exercised by purchasing shares of companies engaged in those businesses. The Act specifically denies power to hold a license either to broadcast or to operate a commercial CATV service.

37/ See Levin, "Broadcast Structure, Technology, and the ABC-ITT Merger Decision", (1969) 34 Law and Contemp. Prob. 452.

all significant barriers were removed to the installation and operation of private microwave systems using frequencies above 890 Mc.[38]/. It has been an important principle behind decisions on domestic satellite systems in the United States. Technical compatibility can be ensured without common ownership.

Diversity of ownership has subjected carrier-operated services, such as private line and teletypewriter message service, to competition. In response to the "Above 890 Decision" in the United States, the Bell System introduced TELEPAK, WATS and WADS for volume users. Western Union introduced Telex.

The common carriers' main argument against diversity in the ownership of transmission facilities is that private unregulated operations only enter the lucrative markets, and that this "cream-skimming" strikes at the root of cross-subsidization between services, a principle which has been almost implicit in the concept of a public utility.

But it should not necessarily follow from a decision favouring a minimum standard of telecommunications service and rates that the less economic services (e.g. rural or Northern areas) be subsidized by the more independently viable ones. An alternative would be a subsidy from another source. The twin questions of (1) whether a subsidy is appropriate, and (2) where it should come from, are separate political issues. "Cream-skimming" telecommunications services, therefore, need not raise the price of telephone service in submarginal areas.

38/ The FCC policy is quite different from the interim policy on microwave relays according to which, pending completion of current studies, the Department of Communications issues licenses: See House of Commons Debates, February 12, 1970, p.3503-04. Under the interim policy the Department goes beyond technical criteria to economic aspects of the public interest. It seeks to foster orderly growth and avoid wasteful duplication of investment.

D. Trade Practices

Carrier practices relating to foreign attachments, interconnection, line sharing or pricing in competitive services, while strictly aspects of behaviour rather than industry structure, nevertheless cannot be divorced from the general question about the proper limits of monopoly power[39].

In the case of foreign attachments (interfaces, buffers, input and output equipment), carriers have argued that to protect the integrity of the public system users should buy or lease attachments only from the carrier. Signals entering the switched network must not impair the quality of service to other users. In the United States this type of tariff, however, was declared unjust and unreasonably discriminatory by the FCC in the Carterfone decision in 1968[40]. That case arose from attempts by Carter Electronics Corporation to market an acoustic coupler (a "Carterfone") which linked private mobile radio systems to the public telephone network. The carriers warned Carter customers that they would not be permitted to use the coupler, whereupon Carter filed an antitrust suit for treble damages against AT&T and GT&E. The court referred the issue of the tariff to the FCC, where the Department of Justice intervened against the carriers on the ground of anti-competitiveness of the tariff[41]. The FCC was unanimous in striking down the foreign attachment prohibition, holding that the carriers should instead establish technical specifications for attachments such as were necessary to preserve the public system from injury.

From the point of view of competition policy, foreign attachment tariffs present the risk of an anti-competitive tying practice whereby market power of the tying product is extended regardless of the intrinsic value of the tied product. The Carterfone decision will help stimulate competition in the equipment industry; particularly, as time-sharing increases, in the case of computer system peripherals. It will also facilitate the growth of the data processing industry. Subsequent to the Carterfone decision the member companies of the TCTS relaxed their foreign attachment tariffs somewhat.

39/ Anti-competitive behaviour in the communications industry is not, of course, limited to the carriers or monopoly power. See R. v. Northern Electric Co. et al, (1955) 3 D.L.R. 449, and Report of the Director of Investigation and Research, Combines Investigation Act, for the year ended March 31, 1966, pp.52-53. However, the abuse of monopoly power presents special issues.

40/ FCC Docket No. 16942 and 17073.

41/ An analogy exists in the case of patents. Anti-combines law in Canada, and antitrust in the United States, prohibits extension of the patent monopoly by the use of restrictive ties in license agreements.

In connection with the computer service industry, carrier control over line-sharing presents issues similar to those of foreign attachments. The viability of small data processing enterprises may well depend upon ability to share the cost of a line.

The same issues also arise when one asks whether private systems should be allowed to interconnect with the public switched network. In a sense interconnection presents more acute issues than the others because the carriers also compete for private system business. The problem could arise in the case of data processing, local loops for long distance private microwave, systems for communication within and between educational institutions, and even systems connecting different premises of the same enterprise.

In 1968, the following provision was placed in the statute creating Bell Canada and describing its powers:

> "For the protection of the subscribers of the Company and of the public, any equipment, apparatus, line, circuit or device not provided by the company shall only be attached to, connected or interconnected with, or used in connection with the facilities of the Company in conformity with such reasonable requirements as may be prescribed by the Company"42/.

The Canadian Transport Commission has jurisdiction over the issue of "reasonableness".

A related risk, that of predatory pricing by carriers where they offer competitive services, is exemplified by an inquiry conducted by the Combines Investigation Branch43/:

> " In December 1957 a complaint was received from a number of firms engaged in installing intercommunication systems to the effect that a large public utility firm, also engaged in installing such systems, was charging unduly low rates therefor. This aspect of the Utility's business was not subject to the Board of Transport Commissioners. It was alleged that the Utility's intercommunication business was thereby subsidized by its public utility business for the purpose of stifling and eliminating competition from smaller competitors.

42/ S.C. 1967-68, c. 48, s. 6.

43/ Report of the Director of Investigation and Research for the year ended March 31, 1960. p.20.

> The complaint was considered from the standpoint of sections 2 and 32 of the Combines Investigation Act in their relation to monopolization of commerce.
>
> Information was supplied by the complainants and the Utility relating to their methods of costing and quoting upon installations. This information indicated that for the purpose of quoting on an installation the Utility applied unit costs derived from its general experience. While this practice might yield higher or lower results than if an installation were individually costed, and in the latter event put competitors at a disadvantage, it appeared nevertheless to be a normal business practice, and the evidence did not establish that such rates were unreasonably low or subsidized by the public utility business. During the currency of the inquiry the Utility introduced a revised system of costing which, while it retained the averaging principle, tended to level out the disparities. The real cause of the complainant's difficulties appeared to stem, rather, from differences in financial stature; the Utility was able to offer its system on a rental basis, which was an attraction to customers, and which the smaller competitors were not, apparently, in a position to do."

A similar issue arose in connection with introduction of the Bell System's TELPAK service in the United States44/. All these situations require examination of a variety of discriminatory possibilities (e.g. circuit sharing, preferences concerning peak load conditions, back-up services, maintenance) as well as cost allocations.

The terms of intercorporate agreements between telecommunications companies may have implications for subscribers and suppliers, and hence also for regulatory bodies responsible for the public interest. This would be the case in which financial settlements between companies resulted in a transfer of revenues between regions or provinces which happen to coincide with areas served by participating companies. The fiscal implications of such transfers would be of interest to both provincial and federal taxing authorities.

44/ Irwin and McKee, "Vertical Integration and the Communication Equipment Industry : Alternatives for Public Policy (1968) 53 Cornell L. Rev. 446, 455-56.

At the same time, certain technical standards which might be the subject of intercorporate agreements could affect competition in equipment manufacturing. Horizontal co-operation between local or regional telephone monopolies is highly desirable with respect to their activities as sellers of services. As buyers of equipment, however, their co-operation should not extend to restrictive agreements on purchasing policy or unnecessary technical standardization. The same applies to technical standards for horizontal co-operation as sellers. (These suggestions are not to deny the need for extensive technical standardization, especially in the case of planned national systems; they are intended only to record possible implications for competition and innovation and to stress the need for public supervision of decisions on standardization.)

Many feel that if vertical corporate ties in the telecommunications industry are relaxed, certain types of long term requirements contracts will naturally develop to meet business needs, with a similar economic effect. The experience of the prairie telephone companies tends to confirm this view.

IV. PROTECTING THE PUBLIC INTEREST

A. Securing Satisfactory Performance

> "Deciding between the market and the hearing examiner as alternative routes to an optimal allocation of the resources invested by society in its communications needs is one of the most important dimensions of the work ahead of us"[45].

The fundamental requirement, of course, is to decide, as specifically as possible, what is desired in terms of long range performance goals from the national telecommunications industry. Basic Canadian political and economic policy tends to rely upon the free functioning of the market to achieve desirable performance results[46]. In situations where the market does not perform satisfactorily a degree of direct government intervention is justified. After functions and jurisdiction have been carefully and precisely defined for regulatory decision a regulatory structure can then be designed, in terms of institutions and the expertise of personnel.

An underlying premise of anti-combines law is that competitive markets perform better, in terms of the economic goals of society as a whole, than non-competitive markets. In seeking to ensure the existence of competitive markets, that law tends to look to industry structure (concentration, ease of entry, etc.) and behaviour (agreements, predatory activities, etc.), rather than to performance (prices, profits, use of capacity, responsiveness to demand, etc.). The existence of market rivalry is the prime interest[47]. There is no concept of, or test for, a "fair", "reasonable", "just" or "exorbitant" price; such non-market judgments are irrelevant as either a test for liability or an excuse for the company. At least in theory, competition is more democratic from the consumer's point of view than direct government regulation.

For historical and economic reasons, Canadians do not seem to have the political fear of either absolute size or government control that is evident in the United States. However, certain political dangers of centralized control may obtain in the communications and information services.

45/ Nicholas Johnson, "Harnessing Revolution: The Role of Regulation and Competition in the Communications Industries of To-morrow", (1968) 13 Antitrust Bulletin 881, 882-83.

46/ See Interim Report on Competition Policy (Economic Council of Council, 1969), Chapters 2, 7 and 8; Turner, "The Scope of Antitrust and Other Regulatory Policies", (1969) 82 Harvard L. Rev. 1207.

47/ In an economy of imperfect markets, the law must frequently in particular cases draw a balance between undesirable market power and desirable efficiency. This is especially true of a small economy such as Canada's.

At the present time, the Combines Investigation Act applies largely to articles of commerce. Messages or data are probably not "articles of commerce" within the Act, and accordingly telecommunications is generally regarded as one of the many services not covered. The Act does, of course, apply to the manufacture of physical equipment, but that provides only a very limited capacity to influence broad development in telecommunications[48/].

A more permanent limitation upon competition policy is that it can only accommodate goals, values and preferences capable of being expressed in terms of effective market demand. Competition will not, alone, provide a wide range of high quality telecommunications services to all Canadians at a reasonable price. "Discrimination" to an economist, for example, means something different than "discrimination" in a human rights sense or to a political theorist.

In some cases, too, competitive conditions simply cannot be attained, let alone at a tolerable cost. At the same time, however, it may in some circumstances be difficult to judge whether greater efficiency lies in one optimally sized firm, regulated or unregualted, or in two workably competitive sub-optimal firms.

The benefits of direct regulation of industry structure and performance lie in the accommodation of political values that cannot be achieved in the market place. These include the provision of uneconomic services and the technical compatibility of systems.

There are, however, many costs and risks in regulation which Canadians should seek to avoid or minimize. First, so far as economic analysis can determine, regulation often dampens pressures for innovation and, by concentrating on profit or rate of return, impairs efficiency by removing incentives for cost reduction. Second, insofar as innovation costs money and involves risk, control over rates almost invariably influences the resources allocable to research and development or, alternatively, the ability to finance it by means of debt or equity. Third, delay, or what public utility economists call "regulatory lag", can interfere with quick response to technological change or public demand. Also, past experience offers certain lessons, or at least exposes problems, for institutional design:

> "(Governments) have seldom placed first-rate men on commissions. They have seldom appropriated the funds necessary to build up dedicated and technically competent staffs. Regulatory commissions, state or federal, are usually floated into existence on a wave of sentiment for the control of certain economic abuses. At the start, the commission stands a good chance of

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48/ The Economic Council, in its Interim Report on Competition Policy, recommended that service industries come within the scope of the Act. Amendments, following study of that Report, will soon be introduced in Parliament.

> drawing able people ready to slay the dragon of abuse, and sustains enough public support to be able to withstand the political counter-pressure of the industry which has been brought under regulation. This condition seldom lasts long. The general public is likely to feel that, once the commission is established, the problem of economic performance is under control, whether or not the facts warrant this faith. The Commission's activity falls more into routine paths. In its work, day by day, it hears continuously the point of view of the business firms it seeks to regulate. Eventually, and without any outright bribery or favoritism, the industry viewpoint sounds more and more reasonable, and the regulatory commission may depart from its original role as guardian of the public interest and shape its policies in line with the interest of the regulated firms."49/

Several suggestions for alleviating these disadvantages have been offered from time to time. It is, for example, becoming trite to stress the general need for new regulatory techniques to accommodate technological change and to encourage as much dynamism as possible in regulated activities. More specifically, most observers stress the desirability of relying on competitive forces wherever possible, and for building incentives into the regulations50/.

Adjustment to inevitable technological change gives rise to important difficulties:

> "Price, output, and investment decisions which may appear "rational" or "optimum" in one technological context may be quite unacceptable and anachronistic in another"51/.

Also, of course, technological change may either erode or supply the basis for the very decision about whether or not to regulate. It may dictate either greater or less concentration of ownership. Basic questions of control should accordingly be open to review at any time.

49/ Caves, American Industry : Structure, Conduct, Performance (Prentice-Hall, 1964), pp. 69-70.

50/ See Wein, "Fair Rate of Return and Incentives - Some General Considerations", in H.M. Trebing, ed., Performance Under Regulation (1968), p.39, and the comments by Conrad and Hughes at pp. 68 and 73 respectively. See also Beigie, "Selected Policy Issues in Canadian Telecommunications" (paper presented to the meeting of the Canadian Economics Association, June 3, 1970).

51/ Adams and Dirlam, "Market Structure, Regulation, and Dynamic Change", in Trebing, ed., Performance Under Regulation (1968), pp. 131 and 138.

There are many degrees between utility regulation in the fullest sense (rates, tariffs, entry, merger, supervision of accounts, extension or abandonment of service) and free competition. Different media require different solutions. Newspapers, for example, are subject to free competition, as are broadcasters except for entry. Entry into the broadcasting indutry is dependent on license partly because of the need for orderly use of the radio spectrum. But competition and regulation can work together and apply to different aspects of the same enterprise. Indeed, the need for certain regulatory authorizations provides new possibilities for anti-combines sanctions.

Borchardt points to a risk involved in mixing control policies[52]:

> "... by distributing functions for the sake of injecting elements of competition, a risk is run of shifting the focus subtly from acceptable performance of a very large and complex multipurpose system over extended periods of time to the performance of parts of such a system with regard to some single purpose over relatively short time spans. Instead of asking how tasks and opportunities should be distributed between companies in such a way that such companies will have adequate long-range potentials and incentives for contributing to the continuing development of the multipurpose intercommunication system, we seek to ascertain whether at any given point in time a particular class of customers receives the desired quality of some particular service at the lowest possible cost. This was the basic issue on which the FCC majority and minority split in the Microwave Communications case."

However, there seems no reason why proper appreciation of these and similar risks will not help minimize the danger.

The existence of some uncertainties, resulting from a lack of information, often creates the need to work from presumptions in selecting appropriate controls. Many economists, for example, argue that the burden of proof should lie on those who support any amount of regulation, let alone regulation of a dynamic, high technology industry, to prove the need for regulation in every aspect[53]. Many support a similar presumption

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52/ Borchardt, Structure and Performance of the U.S. Communications Industry (1970), pp. 95-96.

53/ In this connection, the phrase "computer utility" is unfortunate insofar as it suggests an answer to the question of the appropriate degree of government regulation, if any.

against vertical integration in those types of industries, saying that companies seeking to integrate vertically should be required to establish the existence of significant economies. It would not be inconsistent to switch the presumption in the case of an established, vertically integrated enterprise.

B. Co-ordination of Authority

After the public has assumed certain decision-making functions in the area of performance the procedures for making these decisions become critical[54]/. An important aspect of this procedure, resulting from the relevance of competition policy, is the mechanics for utilizing the expertise and perspective of the Department of Consumer and Corporate Affairs.

It is important that legislation clearly define authority and jurisdiction to decide on the application of competition policy to the industries and particular activities being regulated[55]/. Should a decision of the regulatory body exempt an activity from the dictates of the Combines Investigation Act? The clearest example of a problem is, perhaps, a proposed merger within the regulated sector, but competition policy is also relevant to such things as rate structures, cross-subsidization, technical standardization and entry.

In view of the fact that many regulated enterprises also participate in unregulated activities, and that technological developments lead to shifting boundaries of product or service markets, co-ordination between regulatory authorities and the administrators of anti-combines and patent policy is imperative. That co-ordination might, depending on the nature of the problem, take the form of a right to intervene in regulatory proceedings[56]/, formal consultation, or the need to secure clearance from the Department of Consumer and Corporate Affairs.

54/ See Interim Report on Competition Policy (Economic Council of Canada, 1969), pp. 162-71.

55/ One of the issues raised in the Supreme Court of Canada in the case of Re Couture et al (November, 1969) was whether the CRTC had jurisdiction to formulate and implement its own policy of competition, specifically with respect to cable TV systems. The Court upheld the CRTC's jurisdiction in the particular case, but it's view on the above issue was not made clear.

56/ Interventions by the U.S. Department of Justice before the FCC were influential in both the Carterfone decision and the decision on the proposed ABC-ITT merger.

APPENDIX A

Financial and Ownership Data of Canadian Telephone Companies

Source: Financial Post Survey of Industrials (1969)

NOTE:
1 - current assets
2 - fixed assets
3 - total assets
4 - shareholders' equity
5 - operating revenue
6 - net income

Bell Canada: 1968

	($000)	
1	174,895	
2	2,435,593	After depreciation of 843,631,000
3	2,862,524	
4	1,414,152	
5	758,478	
6	114,329	

Subsidiaries: Northern Electric Co. Ltd.;
Telecommunications de l'Est Ltee;
Telebec Inc.;
The Capital Telephone Co. (99.9% owned);
The North American Telegraph Co. Ltd. (wholly-owned);
La Tuque Telephone Co. (99.9% owned);
The New Brunswick Telephone Co. (50.4% owned);
Northern Telephone Co. (95% owned);
The Avalon Telephone Co. Ltd. (99.6% owned);
Telecommunications Richelieu Ltd. (99.9% owned);
Southern Teleservices Ltd. (99.6%);
Telephone Princeville Ltee (94.8%).

Other Interests: Maritime Telegraph and Telephone Co. Ltd. (5.9% preferred and 52.4% of common shares o/s. No voting control).

The New Brunswick Telephone Company Limited: 1968

	($000)	
1	8,659	
2	111,202	After depreciation of 35,260,000
3	120,880	
4	55,887	
5	31,965	
6	4,332	

Northern Telephone Limited: 1968
In January 1969 company sold assets of its Western Division (including Algoma Central Telephone Co. Ltd.) to Bell Canada for approxi. $6 million.

Subsidiary: Northern Quebec Telephone Inc. (wholly-owned). Formed in 1967 to consolidate all operations in Quebec.

	($000)	
1	3,697	
2	37,417	After depreciation of 16,135,000
3	45,720	
4	20,676	
5	10,808)	consolidated
6	1,118)	

Avalon Telephone Company Limited: 1968

	($000)	
1	2,735	
2	43,282	After depreciation of 7,112,000
3	48,550	
4	20,549	
5	11,676	
6	1,366	

Maritime Telegraph & Telephone Company Limited: 1968

	($000)	
1	8,238	
2	120,986	After depreciation of 38,490,000
3	131,719	
4	64,461	
5	35,208	
6	5,428	

Subsidiaries: The Island Telephone Co. Ltd. (54.6% owned); Cable Vision Services (N.S.) Ltd. (wholly-owned); formed to construct coaxial cable system in N.S.

Anglo-Canadian Telephone Co. Ltd.: 1968

	($000)	(Que. '34) holding company.
1	40,182	
2	625,433	After depreciation of 155,903,000
3	673,125	
4	283,665	
5	170,043)	consolidated
6	10,109)	

Subsidiaries: Own telephone systems in B.C., Quebec and the Dominion Republic and supervise publication of telephone directories and installation of services for telephone companies in Canada. General Telephone & Electronics Corp. owns all o/s common shares.

Subsidiaries: Canadian Telephone & Supplies Ltd.;
Dominion Directory Co. Ltd.;
Compania Dominicana de Telephonos;
Corp. A, York Investment Co. Ltd.

Controlled: British Columbia Telephone Co. (50.24% of o/s ord. shs.);
Quebec-Telephone (55% interest).

Chilliwack Telephones Ltd. (see B.C. Tel. and Anglo-Can.)

Assets purchased by B.C. Tel. Co. August 1, 1954 for $679,000.

Community Telephone Co. Ltd.

Company placed in liquidation in 1969. Taken over by Continental Telephone Corp.

British Columbia Telephone Co. (see Anglo-Can.) 1968

With subsidiaries, company operating more than 90% of telephones in B.C. and 914,304 telephones serviced Dec. 3, 1968. Also operates wireless telephones and radio-telephone systems. Controlling interest is held by the Anglo-Canadian Telephone Co.

Subsidiary: Okanagan Telephone Co. (99.6% owned).

	($000)	
1	27,440	
2	483,209	After depreciation of 133,396,000
3	518,215	
4	213,607	
5	139,389)	consolidated
6	16,915)	

Abitibi Telephone Inc.

Northern Telephone Ltd. which held majority interest acquired remaining interest early in 1968.

Dominion Telegraph Securities Ltd.

Charter surrendered June, 1949, telegraph system and lease sold to CNR.

North West Telephone Co.

Merged with B.C. Telephone Co., January 1961.

Quebec Telephone (see Anglo-Can.) 1968

Subsidiaries: The Bonaventure & Gaspe Telephone Co. Ltd. (wholly-owned). Serves south shore of Gaspe Quebec Communications Inc. (wholly-owned) incorporated July, 1968 to operate coaxial cable system and transmit commercial and educational television.

	($000)	
1	5,535	
2	97,403	After depreciation of 16,970,000 in 1968.
3	103,598	
4	29,087	
5	22,632)	
6	2,579)	consolidated

Okanagan Telephone Co. (see B.C. Tel. Co.)

As at December 31, 1968 had 46,424 telephones in operation.

	($000)	
1	1,618	
2	17,745	After depreciation of 5,752,000
3	19,583	
4	6,257	
5	4,996	
6	460	

The Aylmer & Malahide Telephone Co. Ltd.: 1968

Conducts general telephone business cables in south-western Ontario. Has some 5,600 telephones in use.

	($000)	
1	138	
2	1,121	After depreciation of 553,000
3	1,313	
4	354	
5	432	
6	37	

The Island Telephone Co. Ltd.: 1967 (see MT&T)

	($000)	
1	539	
2	10,936	After depreciation of 3,517,000
3	11,565	
4	6,259	
5	2,967	
6	411	

The Caradoc Ekfrid Telephone Co. Ltd.

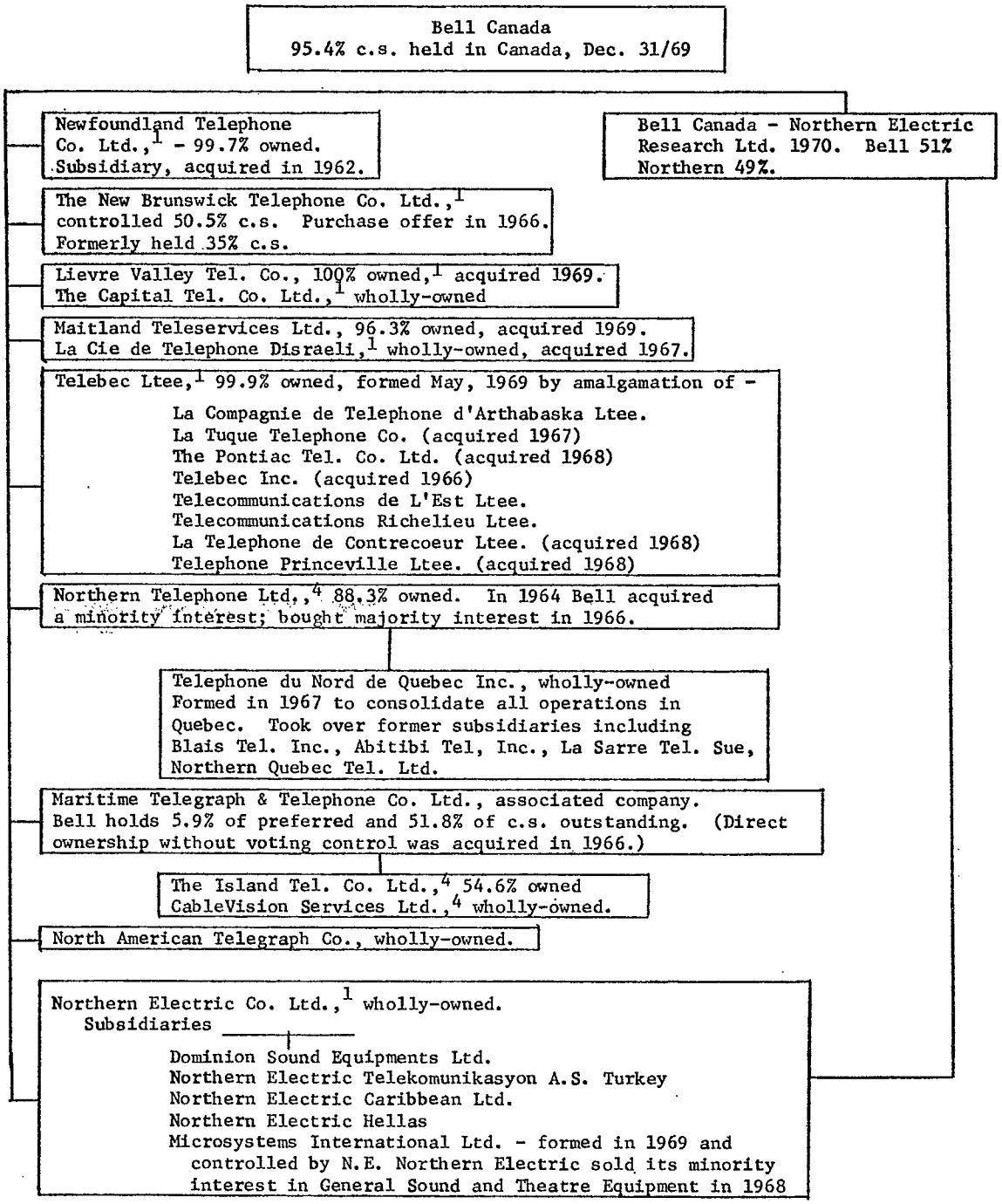
Head office Melbourne, Ontario. Operates telephone system in a number of townships in south-western Ontario.

Kootenay Telephone Co. Ltd.

Wound up. Assets purchased by B.C. Telephone Co. in 1953.

APPENDIX B

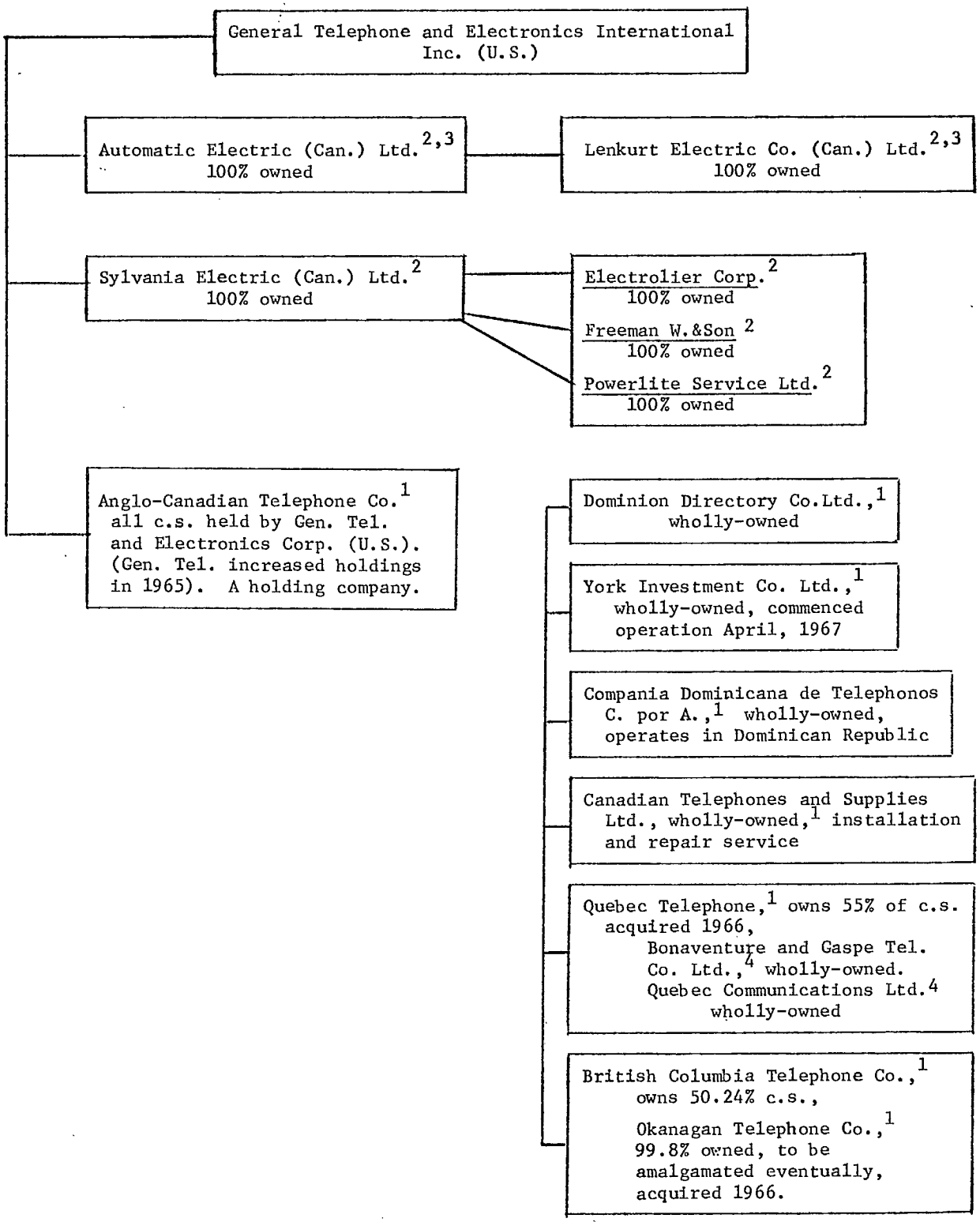
CANADIAN CORPORATE RELATIONSHIPS OF BELL CANADA
(Subject to revision in respect of subsequent acquisitions)



1. Financial Post Card Reader Service
2. Inter-Corporate Ownership, 1967 (DBS)
3. Standard and Poor's
4. F.P. Survey of Industrials, 1969

APPENDIX C

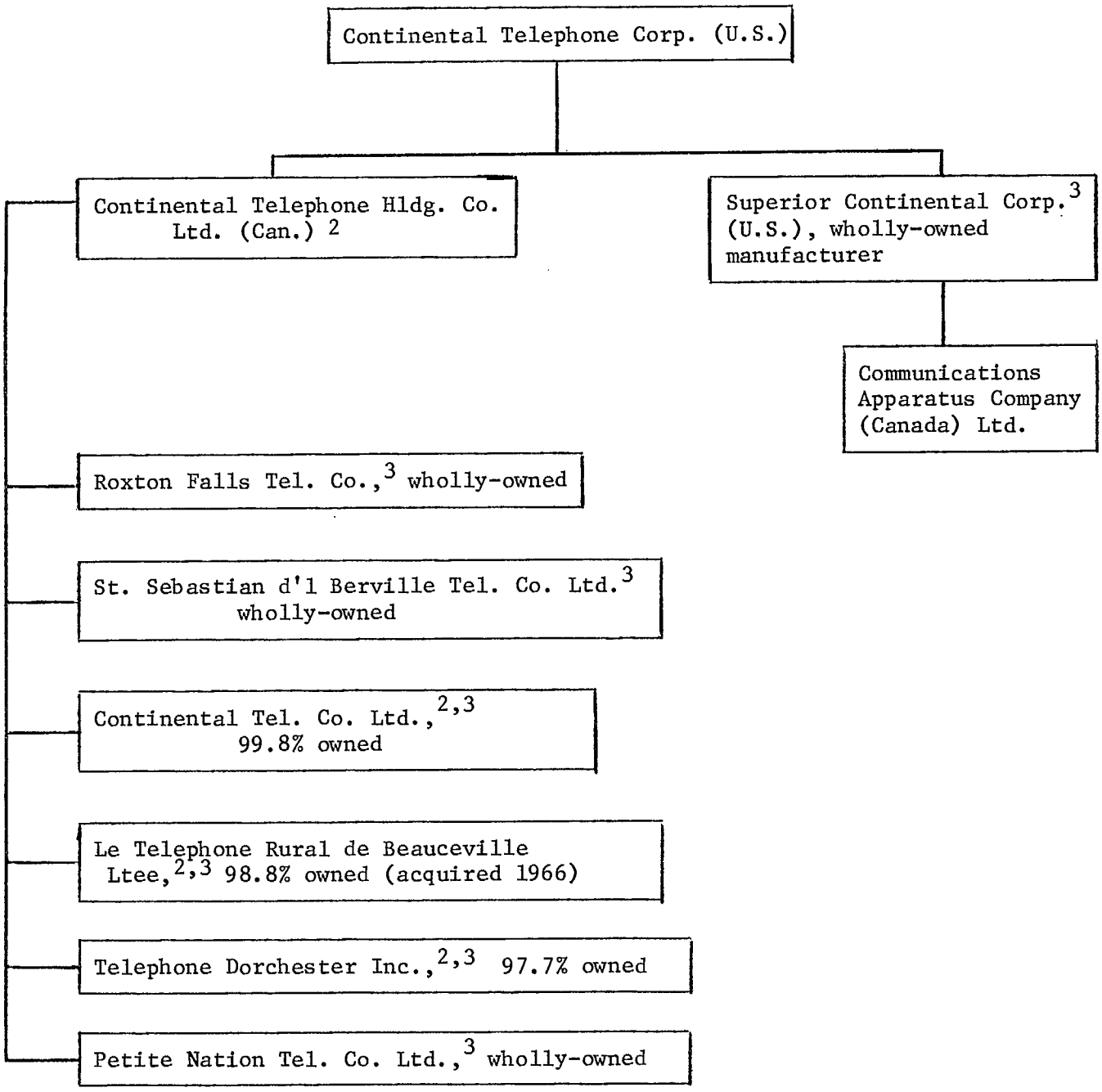
CANADIAN CORPORATE RELATIONSHIPS OF GENERAL TELEPHONE AND ELECTRONICS INTERNATIONAL INC. (U.S.)



1. Financial Post Card Reader Service
2. Inter-Corporate Ownership, 1967 (DBS)
3. Standard and Poor's
4. F.P. Survey of Industrials, 1969

APPENDIX D

CANADIAN CORPORATE RELATIONSHIPS OF CONTINENTAL TELEPHONE CORP. (U.S.)



1. Financial Post Card Reader Service
2. Inter-Corporate Ownership, 1967 (DBS)
3. Standard and Poor's
4. F.P. Survey of Industrials, 1969

APPENDIX E

Number of Telephones Operated by Large Telephone Systems and Total All Systems (Canada: 1968)

Company		Total Telephones
Okanagan Tel. Co.		46,424
B.C. Tel. Co.		867,880
Quebec Tel. Co.		120,070
Total	1,034,374	
Bell Canada		5,450,782
Avalon		82,645
The Island Tel.		30,683
Maritime		256,388
New Brunswick		206,507
Northern Quebec		45,516
Northern		49,905
Total	6,122,426	
Manitoba		399,100
Saskatchewan		297,009
Alberta		432,612
Total	1,128,721	
Fort William		26,449
Port Arthur		25,193
Edmonton		190,328
Total	241,970	
Total major companies		8,527,491
Total, Canada		8,818,000

NOTE: CNT provides telephone service in Newfoundland, Northwest Territories, British Columbia and Yukon, which is not covered in above statistics. In 1968, CNT provided a total of 37,200 telephones.

Source: DBS, Telephone Statistics, Preliminary Report on Large Telephone Systems 1968 and DBS Telephone Statistics 1968. Q.P.

APPENDIX F

Market Shares of Major Canadian Telephone Companies in Terms of Number of Telephones (1968)

	%
Bell to total Eastern Provinces	84.0
Bell group to total Eastern Provinces	94.4
Bell to major companies	63.9
Bell to total Canada	61.8
Bell group to major companies	71.8
Bell group to total Canada	69.4
Maritime to total Canada	2.9
Manitoba to total Canada	4.5
Saskatchewan to total Canada	3.4
Alberta to total Canada	4.9
Non (Bell or General Tel. groups) to total Canada	7.4
General Tel. group to total Canada	11.7
British Columbia & Okanagan to total Canada	10.4
Quebec Telephone to total Canada	1.4

NOTE: Bell group includes 7 companies (see Appendix E).
General Telephone group includes 3 companies.
It is possible that some small companies controlled by Bell have not been included in the Bell group, but are included in statistics for total telephones operated in Canada.

Total telephones in provinces east of Manitoba were 6,486,000 or 73.6% of total telephones in Canada.

Source: DBS, Telephone Statistics, Preliminary Report on Large Telephone Systems 1968, and DBS, Telephone Statistics 1968. Q.P.

APPENDIX G

Selected Statistics from Canada's 300 Largest Companies

Industrial Companies:

Rank 1968	Company	Total Assets 1968 $000,000	Sales, Revenue and/or Income 1968 $000,000
1	Canadian National Railways	4,066	962
2	Bell Canada	2,863	758
3	CPR Company	2,155	562
18	B.C. Telephone Co.	518	139
72	Maritime Tel. & Tel. Co. Ltd.	132	35
89	Quebec Tel.	104	23
147	The Avalon Tel. Co. Ltd.	49	12
155	Northern Tel. Ltd.	46	11
41	Northern Electric	265	426

Source: Canadian Business Magazine (1969)

APPENDIX H

TRANS-CANADA TELEPHONE SYSTEM

1 Nicholas Street, Ottawa, Canada

MEMBER COMPANIES

Alberta Government Telephones

Box 2411, Edmonton, Alberta

Bell Canada

1050 Beaver Hall Hill, Montreal, Quebec

British Columbia Telephone Company

768 Seymour Street, Vancouver 2, B.C.

Manitoba Telephone System

489 Empress Street, Winnipeg 10, Man.

Maritime Telegraph and Telephone Company Limited

Halifax, N.S.

Newfoundland Telephone Company Limited (formerly Avalon)

St. John's, Newfoundland

Saskatchewan Telecommunications

Regina, Saskatchewan

The New Brunswick Telephone Company Limited

22 Prince William Street, Saint John, N.B.

The Canadian Overseas Telecommunication Corporation (Associate Member)