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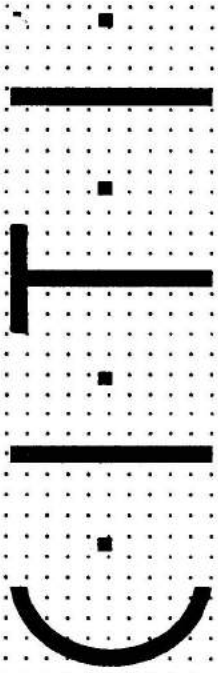

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The Canadian Telecommunications Industry: A Study in Caution

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Canada

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By almost any conventional measure, be it ownership, regulation, internal organization, or industry structure, the Canadian telecommunications industry must appear puzzling if not utterly enigmatic to the foreign observer. If it is any consolation, it is no less confusing to many a Canadian observer as well. What other country in the industrial, and perhaps the entire, world can "boast"—if that is the word—of as tangled and complex a patchwork of foreign and domestic, public, private, and mixed ownership of its telecommunications infrastructure? In how many other countries did the regulatory regime consist (until the 1990s) of three different levels of government acting for the most part entirely independently of each other, yet collectively still leaving large gaps and with no single level of authority responsible for the industry as a whole? Still, Canada's eclectic mix works and has produced one of the finest telecommunications systems in the world.

19.1 The Past

The origins of telecommunications in Canada are found in the privately owned telegraph companies. The first official telegram was sent in 1846 from Toronto to Hamilton. There followed a period of rapid formation and eventual consolidation of companies. By 1915 there were three main ones, all associated with railroads: Canadian Northern, Grand Trunk Pacific, and Canadian Pacific. By the end of World War I the railway companies found themselves in serious financial difficulties. In 1920 the federal government took over the Canadian Northern and Grand Trunk, and in 1921 Canadian National Telegraphs was created to provide the communication necessary for the newly formed Canadian National Railway system, as well as a public telegraph service. In 1928 the Grand Trunk Pacific Telegraph, previously operated independently, merged with Canadian National. The following year, the federal government acquired all the Canadian land mileage of the U.S. giant Western Union, which had operated in the Maritime provinces. By the 1930s, Canada was essentially served by

two systems, both operated by railway companies. One, Canadian National, was government owned; the other, Canadian Pacific, was private. (For more on the telegraph, see ComCan 1988).

The introduction of telephony was somewhat sporadic. Alexander Graham Bell's father, Melville Bell, who lived in Ontario, was assigned Canadian patent rights, but he acted with little energy. By 1880 a number of independent companies had sprung up, and, as there appeared to be great risk of fragmentation, American Bell acquired Melville Bell's interests and sent Charles Fleetford Sise to Montreal to establish Bell Telephone Company of Canada (later Bell Canada). Sise proved to be a man of remarkable vigor and competence and is the true father of the Canadian telephone system in the same sense as Theodore Vail in the United States.

There has been little serious research into the early history of the Canadian telephone industry. Armstrong and Nelles (1986) is a welcome exception, but it covers all public utilities and thus lacks real depth. Two popular histories are Collins (1977) and Ogle (1979). Fetherstonhaugh (1944) is a biography of Sise (see, as well, Babe 1990).

The most important early decision was to use the same organizational structure employed in establishing what became the Bell System in the United States. Far from being the monolithic monopoly it was subsequently portrayed to be, that early organization was, in effect, a patent franchising operation (see Garnet 1985). Each operating company was required to raise much of its capital locally. This was applied to Bell Canada despite urgent requests for more direct American investment (see Taylor 1982). Ironically, this corporate policy—rather than any government initiative—was to insure Canadian ownership of Bell Canada.

Bell Canada, federally incorporated from the outset, hoped to provide service nationally, a task that proved beyond the capability of a single company. In the Maritime provinces, Bell emulated American developments by spinning off three provincial companies in which it retained minority interests. Things did not go as smoothly in the west, where unrealistic expectations for a rapid spread of service in rural areas, combined with strong antagonism toward the eastern monopoly, triggered political demands for government ownership. By 1909 Bell Canada had sold its local holdings to the provincial governments in Manitoba, Saskatchewan, and Alberta, trading territorial dominance for security in its lucrative central Canadian market.

Overall, there can be little doubt as to the pervasive influence of American practices. Consider, for example, the policy of leasing and not selling telephones, value of service pricing, flat-rate local calling but measured long-distance rates, and vertical integration in equipment manufacturing.

However, the flow of ideas was not one way. For instance, it was initially assumed that the very survival of the Bell companies depended on Bell's original patents, which were to expire in the United States in 1894. However, in 1884 they were voided in Canada for lack of local manufacture. After the initial shock, Sise realized that the viability of a telephone system depended on "occupying the field," a lesson later of the utmost importance to AT&T. The

Canadian company similarly proved the critical importance of access to long distance as the primary means of binding a single system together, and the earliest reassuring experience with regulation, especially at a federal level, occurred in Canada.

Outside the Prairie provinces, the British move to a government-owned monopoly had little influence. For a brief moment it appeared that this might not be so. The postmaster general, Sir William Mulock, in opening a wide ranging parliamentary investigation into the telephone industry in 1905, declared himself in favor of government ownership of long-distance lines and municipal ownership of local exchanges. Despite a good deal of complaint about Bell's predatory practices with respect to the remaining independents, and strong urging from Ontario municipalities, especially Toronto, the Select Committee on Telephone Systems fizzled out without even making a final report. Government ownership was rejected as too extreme, although it was also apparent that an appropriate government response to private monopoly had yet to be developed.

19.1.1 Institutional History of Telecommunications

Although it remains a mystery why the established Canadian and U.S. telegraph carriers did not make a determined entry into the telephone business, Canadian telegraph companies later sought to provide a broad range of telecom services. A crucial issue for the 1990s has been whether the reorganized descendent of the telegraph companies, Unitel, should be allowed into all aspects of modern telecommunications. In June 1992 the government granted Unitel's application to provide competitive long-distance services. Thus, the future of Canadian telecommunications appears to be one of more open competition.

The first coast-to-coast transmission of a commercial radio broadcast was over Canadian National lines in 1925. In 1932 Canadian National and Canadian Pacific jointly secured the national network contract of the Canadian Radio Commission, the forerunner of the Canadian Broadcasting Corporation system. They also inaugurated the first nationwide weather information gathering and dissemination service in 1939, and provided a Canada-wide voice communications system for air traffic control during World War II.

In 1946 Canadian National entered directly into provision of telephone service when it took over the Northwest Communications System, a government wartime trunk line established from Alberta to Alaska. This grew into NorthwesTel, a Canadian National subsidiary providing a full range of telecom services in northern British Columbia, the Yukon, and the western portion of the Northwest Territories. In 1949, when Newfoundland became Canada's tenth province, Canadian National became further involved in telephone service by assuming responsibility for much of the rural service previously provided by Newfoundland Post and Telegraphs.

In 1947 Canadian National Telegraphs and Canadian Pacific Telegraphs began joint operations to provide private wire services. This was the first step toward the formation of CNCP Telecommunications. In 1956 CNCP introduced

Telex to North America, and in 1964 completed a microwave network across Canada.

The most significant achievement in the interwar years was the full national interconnection of the separate regional telephone systems. Unlike other national links such as the railways and later the Trans Canada Highway, this was achieved without government subsidy. It was also done without there being a single, separate-long distance company. Each company retained exclusive responsibility for its own territory, but agreed to extend long-distance lines to its boundaries to exchange traffic, to enter interconnecting agreements with neighbors, and to share revenues for calls from or to nonadjacent companies.

In 1921 the Telephone Association of Canada (TAC) was organized. Its technical committees began to explore the possibility of developing a national system. At that time, many long-distance calls between Canadian cities went via the United States because of a lack of cross-country circuits. During the late 1920s TAC decided to construct an all-Canadian network from coast to coast. The link between Montreal and Winnipeg was completed in 1928, In 1931 the Trans-Canada Telephone System (TCTS), renamed Telecom Canada in 1983, was formed to develop and maintain a Canadian transcontinental long-distance telephone network. The network was completed before the end of 1931 and inaugurated in January 1932 (an epic story well told in Ogle 1979).

Although the legal structure of this arrangement as an unincorporated association has remained unchanged, two new major technological innovations have greatly increased its transmission capabilities. In 1958 the member companies built a 139-station microwave route. At the time the world's longest, it extended 5,400 km from Sydney, Nova Scotia, to Victoria, British Columbia.

The next important step was the introduction of communications satellite technology and yet another independent organization with mixed ownership. Telesat Canada was incorporated in 1969 to introduce satellite technology to domestic telecom systems. Jointly owned by the federal government and the major carriers (provision for direct public participation has never been acted on), Telesat became a member of TCTS in 1977.

Regarding international services, connections to U.S. points have been provided since the earliest days by means of interconnection agreements between Canadian and U.S. firms. By the 1980s, these private arrangements had been supplemented by international agreements and treaties.

U.S.–Canada traffic accounts for some 85 percent of international calling. The remainder, termed "overseas," was handled by the Canadian Overseas Telecommunications Corporation (COTC), renamed Teleglobe Canada in 1975. This government corporation was formed in 1949 to comply with the 1948 Commonwealth Telegraphs Agreement whereby each signatory government agreed that external telecom operations would be acquired by a government department or corporation that could then represent its government as a "national body" at meetings of the Commonwealth Telecommunications Board. Prior to 1949, Canadian overseas telecom services had been provided by privately owned telegraph companies including Western Union.

As early as 1882, Bell Canada started manufacturing equipment through a

local subsidiary, The Northern Electric Manufacturing Company, forerunner of Northern Telecom, was incorporated in 1895. Canadian manufacture was a major irritant in relations between American Bell and Bell Canada, as it had been assumed from the outset that the Canadian company would purchase all its equipment from the Bell system's vertically integrated supplier, Western Electric. This issue came to a head in 1901 when Bell Canada proposed to expand its cable manufacturing capacity and to end its dependence on Western Electric. Western Electric demanded, and was eventually granted, a half share in Northern Electric. It then gave Northern full access to all its new technology by way of a series of very broad service agreements (see Taylor 1982, pp. 26–28).

These arrangements meant that until the 1950s, Northern Electric was a branch operation entirely dependent on Western Electric for its technology. It was weaned from this reliance by AT&T's 1956 Consent Decree. In 1957 Western's share in Northern was reduced to 10 percent, and that was divested in 1962. The terms of the Consent Decree regarding the disclosure of technical information led to a concern at AT&T and Western that they might have to extend to all U.S. manufacturers the same information Northern was obtaining. Accordingly, beginning in 1959, the Western Electric–Northern Electric Technical Information Agreements became progressively more costly and restricted. By 1972 this flow of information had essentially stopped, and in 1975 the last AT&T-Bell Canada agreement expired. As a result, Northern was on its own at a most fortuitous moment: the shift from electromechanical to electronic switching.

By the 1970s Canada had achieved an extraordinarily advantageous situation in equipment manufacturing: vertical integration at home and competitive entry abroad, especially in the United States (see Waverman 1989). After a long investigation culminating in the early 1980s, the Restrictive Trade Practices Commission, then the nation's competition policy watchdog, concluded that the benefits of vertical integration far outweighed any disadvantages. The commission was particularly impressed by Northern's success in penetrating the U.S. market and concluded that risky product development would have been undertaken only with the assurance of a large share of the Canadian market (RTPC 1983).

19.1.2 Major Legal Foundations

Bell Canada's primary legal foundation, its initial patent rights, proved to be of little lasting value. Under the 1870 Patent Act, patents could be declared void if after two years there had been no manufacture in Canada. In 1884 Bell's patent, granted in August 1877, was canceled for this reason.

Unlike the Bell companies in the United States, which sought charters at the state level, Bell Canada was incorporated federally from the outset. The Bell Telephone Company of Canada Act of 1880 gave the company extensive rights of way to the apparent exclusion of any residual provincial or municipal control. This was successfully challenged in 1881 in a Quebec court on the ground

that telephone service was only local at that time and did not cross any provincial boundaries. Bell Canada in 1882 asked the federal Parliament to declare conclusively that it was under federal jurisdiction. As it turned out, this legislation was not vital. When the City of Toronto sought to challenge the company's right to enter its streets to lay cables without municipal consent in 1904, the Privy Council, then Canada's highest court, held that the scope of the business contemplated in its act of incorporation was sufficient in and of itself to exclude Bell Canada from being a local undertaking subject to municipal or provincial jurisdiction.

Bell Canada's legal victory in the Privy Council was a major blow to the municipal ownership movement in Ontario and greatly weakened the impact of municipal intervention before the Select Committee on Telephone Systems in 1905. Sise was very aware of the crucial importance of the federally guaranteed right of way granted Bell Canada.

While Bell Canada had not been granted a legal monopoly to provide telephone service, its federally guaranteed right of way gave it a very important advantage over any would-be competitors. The latter would face very significant costs in obtaining municipal rights of way, assuming any municipality was prepared to have two sets of poles on its streets. Bell Canada also had a great advantage in that Parliament would be very reluctant to grant such rights of way to another company given the criticism it already faced for having been so generous to Bell Canada.

The other crucial element in early legislation was the absence of any requirement for interconnection. Before the 1905 Select Committee and elsewhere, Bell Canada stoutly resisted interconnection on the grounds that a long-distance competitor could use Bell's local exchanges to take long-distance traffic away from it.

There was no provision in the original Bell Telephone Act for regulation. However, Bell Canada did have to return to Parliament whenever it wished to raise its level of capitalization, which provided an opportunity for those who felt there should be some form of public control. A power with reference to rates was slipped into the Bell Telephone Act of 1892, apparently more by accident than design, and its ill-conceived nature soon became evident.

At the turn of the century, debate was shifting from the right-of-way issue to the issue of monopoly. It was widely agreed that the nature of telephone service required it be provided on a monopoly basis, which justified some form of rate regulation. In 1902 a public service dimension was added to Bell Canada's legal obligations, and all rates were subject to regulation by the Governor in Council, elected politicians serving as the Cabinet.

What had not been resolved was the institutional competence of the governor in council to deal effectively with rate matters. Under both the 1892 and 1902 Acts, the politicians found it impossible to devote adequate time and energy to this complex task, in which there would often be no clear political winners, so this early experience in regulation satisfied no one.

At this time, telephone rates were a minor matter compared with the highly

contentious issue of railway rates. Much thought had been devoted to the institutional design issue with respect to those rates, and the Galt Commission in 1888 and the McLean Reports in 1899 and 1902 advocated rate regulation be undertaken by independent, expert commissions. This would remove it from the immediacy of politics. At the same time, the U.S. model of a fully independent commission was rejected as inimical to the political accountability essential to parliamentary government. This led to a compromise in which independence and expertise would be reconciled with political accountability by means of a broad "cabinet appeal" power whereby politicians had the final say. By seeking the best of both worlds, the Railway Act of 1903—applied to Bell Canada in 1905—built a troubling ambiguity that remains unresolved into the regulatory scheme.

In the Maritime provinces, the shareholder-owned provincial spinoffs of Bell Canada were brought under provincial boards. Unlike the Board of Railway Commissioners, these were more closely modeled on the more fully independent state public utility commissions in the United States. It is interesting that government ownership and regulation were not seen as alternatives, for the prairie telcos were also made subject to provincial public utility commissions. This came about in no small measure as a result of early mismanagement and the desire of politicians to be shielded from the embarrassment of having rates rise above those previously charged by the much maligned eastern monopolist, Bell Canada.

Extensive regulation came earlier in Canada than it did in the United States, and Canadian experience taught Vail that regulation could be accepted in return for monopoly. Bell Canada did not actively seek regulation; rather, it fought hard for the regulatory regime likely to be the least threatening to its well-being. Detached expertise, measured legal process, and acceptance of prior industry structure were the attributes that would be most sympathetic to the interests of a telephone company. As Vail was to remark some years later, there could be no objection to "independent, intelligent, considerate, thorough" regulation that recognized that ". . . capital [was] entitled to its fair return, and good management or enterprise to its just reward" (AT&T *Annual Report* 1907, p. 32). In no small measure his private-ownership monopoly-regulation philosophy grew out of the benign form of regulatory regime adopted in Canada.

This structure was put to its first real test in the years immediately following World War I when the telcos were placed under immense financial strain. Overall, the Board of Railway Commissioners and the various provincial public utility boards proved to be most understanding—too much so, according to Armstrong and Nelles (1986, p. 282). While their view might be seen as going too far toward a full-blown capture thesis, it is true that regulation legitimated telcos activities that would otherwise have been denounced as contrary to the public interest. Only in the 1980s has it been asked whether this type of broad "regulated conduct exemption" from the normal rules governing competition should be maintained.

19.1.3 Telecommunications Industry to 1980

The first century of telephony in Canada was one of striking achievement. Penetration rates for basic service (POTS) were comparable to those in the United States and Scandinavia; satellite and microwave services had been introduced in a timely fashion—indeed, Canada pioneered developments in domestic satellite telecommunications; and a number of innovative business services had been made available. Three overarching considerations explain this success.

First, territorial exclusivity: Each carrier operated as a monopoly within its territory. Second, regulatory simplicity: Each carrier was subject to only one regulator. Third, common philosophy: Despite wide variations in ownership, all carriers shared common objectives. This is particularly important with respect to the provincially owned telcos that, after a short period of aloofness, brought their policies in line with those of Bell Canada.

The role of rules and practices in creating discrete territorial monopolies remains an open question because of the somewhat limited ambit of legal restrictions and the relatively isolated nature of the recorded instances of predatory behavior. If Canadian telephony in its early development had been considered suitable for competitive entry, one might have expected more attempts at entry and a far greater array of defensive measures.

For example, look at Sise's success in "occupying the field" in Ontario and Quebec for Bell Canada. While it is true the 1920s still saw many small independents in operation, they were actually feeders that conveniently relieved Bell of some of the burden of providing rural service. There had been some genuine competitors such as the Montreal Merchants' Telephone Exchange and the Canadian Pacific Railway-backed Montreal Federal Telephone Company, but they never lasted long.

Bell Canada had never been granted a legal monopoly as such, but certain rules placed it in an advantageous position. It supplemented its federally guaranteed right of way by entering into exclusive service contracts with major municipalities in the 1890s and by arranging with the railway companies to have only Bell service at their depots, the center of commercial activities in small towns at the time. Most importantly, until 1906 it was under no legal obligation to provide interconnection; when interconnection was required, the regulators were persuaded to rule it only had to be provided on terms very favorable to Bell.

It also appears Bell Canada was vigorous in its dealings with potential competitors, on occasion combining predatory pricing with strategic acquisition of independents that might mature into serious rivals. Only well into this century was an aggressive policy of acquisition abandoned and noncompetitive interconnection allowed.

Many economists agree that local service is most likely a natural monopoly and that it is therefore not surprising competitors seldom sought to enter that market. Regarding long-distance, there is evidence it was provided at a loss in the interwar years. For example, in a 1926 proceeding Bell argued successfully that it would be harmed by interconnection because local service was subsidiz-

ing unprofitable long-distance service. Only after World War II, when microwave and satellites brought transmission costs down dramatically, did entry became attractive and new entrants in long distance emerged.

The major foreign involvement has been in British Columbia Telephones (BC Tel). Despite Bell Canada's ambitious national aspirations in 1880, it was considered totally unrealistic to think of providing service on the other side of the Rocky Mountains. As a result, a number of independent companies sprang up in the 1880s, but BC Tel, originally organized in 1898, had emerged as the dominant carrier by 1920. In the mid-1920s BC Tel approached Bell Canada seeking to be acquired, but Bell was not interested, apparently believing as long as its western counterpart continued to buy Northern Telecom equipment, there was no need to acquire it.

This turned out to be a miscalculation. BC Tel sold out to an American public utilities consortium headed by Theodore Gary, which happened to own Automatic Electric, the largest manufacturer of telephone equipment in the United States after Western Electric. The Gary interests were sold in 1955 to GTE, the largest independent telco in the United States. In 1975 a federal study confirmed the most serious charge against this foreign ownership: In the move to electronic switching, BC Tel lagged other carriers because its planning was determined by the technology available from Automatic Electric (DOC 1975).

In the 1970s Northern Telecom began to develop and apply electronic switching on a massive scale and to enter the liberalized U.S. market with considerable success. With the establishment of Bell Northern Research (BNR), the tricorporate synergism of Northern–Bell Canada–BNR meant that while only 10 percent of Northern's manufacturing sales were of Northern proprietary design in 1970, it had risen to 75 percent in 1977 and to 82 percent in 1980.

19.1.4 Special Circumstances

19.1.4.1 Demographics

Canada is said to have too much geography and not enough history. It certainly has a small population compared to its land mass. For example, its territory is some twenty-five times that of Japan, while its population is only one fifth as large. Some 80 percent of Canada's people live within 300 km of the U.S. border, creating—from a demographic standpoint—a country 5,000 km long by 300 km wide. This creates an immense challenge to maintain east–west traffic flows in the face of powerful north–south attractions.

There are wide differences in density within the population strip. With 25 percent of the nation's population, Toronto and Montreal create a Tokyo–Osaka type business concentration, while the Prairie provinces have a thinly dispersed rural population.

19.1.4.2 Contiguity to the United States

Two phenomena arise from U.S. proximity. First is the demonstration effect of liberalization, especially for the business community. The "why can't *we* have it *here?*" complaint, grounded in the high degree of business mobility and

American ownership in the general economy, has a strong impact on Canadian telecommunications policy. At the same time it must not be thought that all U.S. ideas, particularly disruptive ones such as the divestiture of AT&T, will be automatically imported into Canada.

Second, there continues to be concern that if Canadian long-distance rates are not brought down closer to those in the United States—in the early 1990s the differential may have been as high as 40 percent—trans-Canada traffic will be diverted to the United States. While the attractiveness of this has been somewhat reduced by substantial increases in short-haul private-line rates to the border, the threat remains an important factor in Canadian policy-making. As a senior official at Telecom Canada succinctly put it, "The biggest deregulator in Canada is a private line to Buffalo" (Harvey 1983, p. 67).

19.1.4.3 A Weak Central Government

When compared with other federal states, the central government in Canada has been strikingly deferential to provincial interests, especially during the 1980s. Canada is a prisoner of its history; once provinces were allowed exclusive authority over telcos within their borders, and with only Bell Canada and BC Tel under exclusive federal control, it became very difficult to ask them to give it up. What may have had little value in the past has acquired great symbolic importance in the ongoing federal–provincial maneuvering so characteristic of Canadian federalism. More than a decade of fruitless negotiations since the late 1970s bears witness to the intractable nature of the jurisdictional issue (see Buchan et al. 1982).

The federal government has no preemptive power, as it does in the United States, which means it has been impossible to introduce truly national policies on competition in long distance or for new services such as cellular (see Dalfen and Dunbar 1986, pp. 139–202). The federal government has not sought national authority with any degree of vigor, but has coyly held back in the hope of not offending the provinces. However, it seems that the federal government may be prepared to assert itself on the necessity of national telecommunications policies in the 1990s.

19.2 The Present

19.2.1 Industry Structure

Although there are still more than 100 common carriers in Canada, most are extremely small. The five largest—Bell Canada, BC Tel, Alberta Government Telephones (AGT), Manitoba Tel, and Saskatchewan Tel—account for over three-quarters of industry revenues, with Bell alone generating over half. These five, along with New Brunswick Tel, Maritime Tel & Tel, Island Tel, and Newfoundland Tel, provide the basic terrestrial infrastructure of Canada's domestic telecommunications network.

Three other common carriers merit attention, CNCP Telecommunications, Telesat Canada, and Teleglobe Canada. CNCP was, until 1988, a partnership

of the telecom divisions of Canada's two major railways—Canadian National Railways (CNR), a crown (government) corporation, and Canadian Pacific Ltd. (CP), an investor-owned company. CNR sold its half interest to CP in the fall of 1988. A few months later Rogers Communications Inc. (RCI), flush with cash from the sale of its U.S. cable television assets for U.S.$1.365 billion, purchased a 40 percent stake in CNCP for an estimated $250 to $275 million. The renamed company, Unitel, applied to federal regulators (the Canadian Radio-television and Telecommunications Commission, CRTC) to enter the public voice long-distance market.

Unitel is the only company in Canada owning coast-to-coast microwave facilities. Using the right of way of the railways that preceded it, Unitel has rapidly laid a transcontinental fiberoptic line. The irony is that Unitel, Canada's only truly "national" telecom carrier, is severely restricted in the types of service it is allowed to provide. Although it competes in varying degrees with several of the regional telcos in data and other business services, including private-line voice, it does not provide an alternative to either local or toll basic voice services. This is because it owns no local distribution loops linking subscribers to local switching offices. Moreover, it has not been allowed to interconnect with the telephone companies to provide switched voice message services in competition with them.

With a massive infusion of capital and entrepreneurial vigor from RCI, Unitel promises to create an entirely new universe of competitive opportunities. Led by Ted Rogers, its energetic and visionary chairman and CEO, RCI not only owns Canada's largest CATV company, Rogers Cablesystems, with nearly 1.4 million subscribers representing a 22 percent share of the Canadian market (in 1987), it also owns 97 percent of Cantel Inc., the country's largest (and only national) cellular telephone company.

In 1989 Cantel was supplying service to over half the country's nearly quarter million cellular subscribers, and was positioning itself for further gains with plans to invest U.S.$1.3 billion in cellular and cable service by 1994. By 1991 Cantel's service corridor extended 7,500 km from coast to coast, the longest cellular network in the world. Plans to replace the coaxial cables wiring homes of existing cable subscribers with fiberoptic technology have also been outlined by Rogers.

The combination of RCI's extensive cable and cellular operations with Unitel's microwave and fiberoptic long-distance networks, as well as Unitel's leased satellite offerings, not to mention CP's 30 percent interest in Telesat Mobile Inc., a supplier of national mobile satellite telephone service scheduled to begin operation in 1993, poses the most serious challenge ever to face Canada's traditional telephone carriers.

Telesat Canada was established in 1969 as Canada's national satellite communications carrier. The federal government owns half; the rest is held by Canada's major terrestrial carriers including Unitel. Prior to 1986, Telesat's role was essentially restricted to that of a carrier's carrier; most of its revenue was from providing long-distance transmission for common carriers and broadcasters. This restriction was relaxed in mid-1986 with the introduction of a new

federal policy permitting broadcasters, business users, and others to independently own and operate transmit/receive earth stations. (For more on this policy, see ComCan 1988, pp. 49–51.)

By the late 1980s Telesat offered a broad range of competitive voice, data, and video services to business customers. In addition, it offered custom designed networks for highly specialized needs or, for users with private networks already in place, leased satellite channel capacity in increments of 1 percent. Telesat continues to provide voice and data communications to isolated communities, as well as oil and gas exploration camps, mining and forestry centers, and other remote work locations, primarily in the north. It is announced government policy that Telesat be fully privatized in the "near future."

Teleglobe Canada, meanwhile, is the exclusive provider of overseas telecom services. Canada–U.S. traffic, 85 percent of all Canadian international traffic, falls outside Teleglobe's reach, being supplied instead by carriers belonging to Telecom Canada. Prior to 1987, Teleglobe was a federally owned crown corporation. It was sold to private interests, however, in the spring of 1987 as part of the government's privatization program.

The winning bidder was Memotec Data Inc., a small and until then little-known company providing data services. The price was $563 million, to be raised in part by a public offering by Memotec once the sale had been completed. In May, to a great deal of surprise, BCE (Bell Canada's parent) acquired one-third of Memotec's shares, gaining de facto control. This cast considerable doubt on the government's announced policy of seeking to insure the independence of Teleglobe from Canada's other major carriers. Bell Canada continues its push to acquire full control of Teleglobe, arguing that international services should be provided on an integrated basis.

The sheer simplicity and elegance, others might say audacity, of these moves was reminiscent of Bell Canada's corporate reorganization in 1982 when, in a move designed to thwart what it perceived to be excessive regulation, Bell Canada created its own unregulated parent company, BCE, and then transferred to it most of its subsidiaries. Although legislation restored some of the regulatory powers thus lost by the CRTC, Bell's move is still seen by many as having been largely successful.

One feature distinguishing the Canadian telecommunications industry from that in other countries is the absence of any single common carrier offering fully integrated services nationwide. It has instead, dozens of small and nine relatively large full-service terrestrial carriers operating essentially within the boundaries of single provinces. Thus, aside from long-distance traffic crossing provincial boundaries within Bell Canada's operating territory—which spans much of Ontario, Quebec, and the eastern Northwest Territories—all interprovincial telecommunications must pass through the facilities of two or more separately owned and operated common carriers. Interprovincial communications are therefore largely dependent on the existence of interconnect agreements between the various service providers. The most important of these is the master contract between Canada's nine major telcos and Telesat Canada.

The Telecom Canada Connecting Agreement covers nonadjacent member companies, leaving arrangements between adjacent companies to bilateral negotiations, a revenue sharing plan, and a commitment to cooperate in the development and implementation of uniform standards and operating procedures, the adoption of new technologies, and in the marketing of new services. It also provides for coordination with U.S. carriers to facilitate handling North American traffic and with Teleglobe for exchange of overseas traffic (see McManus 1973).

The precise legal status of Telecom Canada, and TCTS before it, has always been somewhat unclear. Telecom Canada remains an unincorporated enterprise best described as a voluntary association of independent carriers bound by a common purpose as defined in a set of multilateral agreements. From an economic perspective it exhibits many of the classic traits of a cartel.

Telecom Canada's organizational structure has necessitated a number of functional compromises to facilitate smooth operation. For example, because each member has one vote and all decisions must be unanimous, the smaller members wield disproportionate influence. Though decisions relating to budgets, construction plans, marketing, the introduction of new technologies, and so on, must be jointly made, Telecom Canada itself owns neither plant nor equipment. Its function is to plan, administer, and coordinate; it is not to operate. Telecom Canada's headquarters are located in Ottawa, with all its personnel, premises, and facilities on loan from member companies. Administrative costs and services are shared among members as are profits in accordance with the revenue sharing plan (Janisch 1984).

An important consequence of the Connecting Agreement, or more precisely, its revenue sharing plan, has been the ability of the Telecom Canada Board of Management to effectively set rates on all interprovincial traffic utilizing the facilities of three or more members (Brait 1981, p. 56). Indeed, Telecom Canada members have been remarkably successful in creating and sustaining a rate structure based on system-wide average pricing and toll-to-local cross subsidization, the benefits of which have flowed primarily to the local subscribers in the smaller, less-urbanized provinces.

Also characteristic of Telecom Canada has been its engineering—as opposed to marketing—approach to service provision. Member companies have historically been much more committed to providing reliable, high-quality service on a universal basis than they have been to marketing a diverse mix of services or rapidly introducing new ones. This arguably reflects genuinely shared values and beliefs of the members, especially at a time when monopoly was the rule and declining costs allowed considerable leverage in experimenting with income redistribution between regions and classes of subscriber, while at the same time facilitating one of the highest service penetration levels in the world.

A second factor explaining the relative success of Telecom Canada is the fact that it has never been subject to direct regulation (see McManus 1973, p. 424). The CRTC has, at most, only indirectly affected Telecom through its regulation of Bell Canada, BC Tel, and Telesat Canada. Provincial regulatory

agencies, by comparison, have shied away from meddling in Telecom affairs despite the growing reliance of provincial carriers on Telecom toll revenues. Fear of upsetting system-wide uniform pricing is the principal reason.

19.2.2 Current Regulation and Ownership

To see why Canada has had the richest and most eclectic mix of ownership patterns and divided regulatory jurisdictions in telecommunications of any country in the world, one need only scan Tables 19.1 and 19.2.

The complexity of these arrangements has been somewhat reduced in the early 1990s, at least with respect to jurisdiction to regulate. The constitutional basis for provincial regulation had long been suspect, but the federal government, out of deference to long-entrenched provincial interests, had not been prepared to launch a legal challenge. In the mid-1980s, however, CNCP (now Unitel), frustrated at its inability to obtain interconnection with the provincially regulated companies for data and private-line voice services, sought to have the validity of provincial regulation tested in the courts. In August 1989 the Supreme Court of Canada ruled unanimously that members of Telecom Canada are subject to federal jurisdiction *(AGT* v *CRTC)*. It is possible that *all* carriers interconnecting to the interprovincial network will be swept into the federal fold. As jurisdiction in Canada is determined on an all-or-nothing basis, there is no room for shared jurisdiction as in the United States. The ruling has raised concern that the pendulum has swung too far in favor of exclusive federal authority (Janisch and Schultz 1991).

A move to privatization remains on the ownership front. In October 1990 AGT was privatized as a subsidiary of a new holding company, TELUS Corp. The initial public offering was the largest in Canadian history, raising $896 million from more than 139,000 Canadian investors. AGT Ltd. is now the

Table 19.1. Specialized Carriers Regulated by the Federal Government*

Carrier	Service Provided	Owners
Telesat Canada	Satellite carrier	Government of Canada 50%, others 50%[a]
Teleglobe Canada	Overseas (i.e., international other than to United States)	Memotec 100%[b]
Unitel	Specialized transcontinental carrier	Canadian Pacific Ltd. 60%, Rogers Communications 40%[c]

*The federal regulator is the CRTC (Canadian Radio-television and Telecommunications Commission)

[a]The others, which include Unitel, are approved common carriers listed in Schedule I of the Telesat Canada Act of 1969.

[b]Memotec is 33 percent owned by BCE (Bell Canada Enterprises). The other 67 percent is widely held.

[c]CP and Rogers are widely held publicly traded companies.

regulated entity. Cumulatively, the withdrawal of government-owned CN from telephone service, the sale of Teleglobe and AGT, and the announced plans to fully privatize Telesat mean that, of the major carriers, only Sasktel and Manitoba Tel remain under government ownership.

Simply stated, in the last half of the 1980s Canada went from government and private ownership with federal and provincial regulation to a system that is, with minor exceptions, federally regulated and investor owned.

19.2.3 Regulatory Oversight

19.2.3.1 Federal Jurisdiction

Although the Canadian telecommunications industry has undergone a profound transformation since the mid-1970s, the steady shift from monopoly to competition has been accomplished entirely without benefit of new legislation. Indeed, the Railway Act, which governs telecommunications regulation at the federal level, dates back to the first decade of this century. Sections 334–41 are easily the most crucial provisions to telecommunications regulation. They set out the jurisdiction, duties, and most of the powers of the CRTC and outline a number of the responsibilities, duties, and obligations of service providers coming within the commission's jurisdiction.

The CRTC's principal responsibility is to insure rates are "just and reasonable" and "not unjustly discriminatory or unduly preferential." Given that neither the Railway Act nor any other federal statute anywhere contains a general policy statement outlining the aims and objectives of telecommunications regulation, it is no exaggeration to suggest that the statutory mandate of the CRTC both begins and ends with the responsibility of insuring these two requirements are met. The Commission interprets and realizes how these goals are to be met.

As the CRTC pointed out in its first public statement after assuming jurisdiction over federally regulated carriers from the Canadian Transport Commission in 1976:

> [T]he principle of "just and reasonable" rates is neither a narrow nor a static concept. . . . Indeed, the Commission views this principle in the widest possible terms, and considers itself obliged to continually review the level and structure of carrier rates to ensure that telecommunications services are fully responsive to the public interest. (CRTC 1976.)

The Railway Act limits the jurisdiction of the Commission to companies rather than markets or market activities. The definition of companies unfortunately employs hopelessly antiquated terminology. As new technologies proliferate, the resolution of jurisdictional questions must become more arbitrary and subject to dispute, as shown by two CRTC decisions issued within three months of each other. In one, the commission held cellular radio providers to be "companies" within the meaning of the act, while the other found nontelephone company suppliers of enhanced services not to be "companies" and, hence, outside commission jurisdiction. The definition in the act could quite legiti-

Table 19.2. Area-Specific Telephone Companies, as of Mid-1989

Carrier	Area Served*	Regulator[a]	Owners
British Columbia Tel (BC Tel)	British Columbia	CRTC	GTE 51%[b]
Alberta Govt Tel (AGT)	Alberta	Alberta Public Utility Board	province
edmonton Tel (Edtel)[c]	Edmonton, Alberta	unregulated	city of Edmonton
Sask Telecom (Sasktel)	Saskatchawan	unregulated	province
Manitoba Telephone System (MTS)	Manitoba	Manitoba Public Utility Board	province
Thunder Bay Tel	Thunder Bay, Ontario	Ontario Telephone Services Commission	city of Thunder Bay
Ontario Northland Tel	parts of northern Ontario	unregulated	province
Northern Telephone	parts of northern Ontario	Ontario Telephone Services Commission	BCE† 98%
Bell Canada	the most-populated parts of Ontario, Quebec, and eastern NW territories	CRTC	BCE
Telebec	parts of northern Quebec	Quebec Regie des Services Publics	BCE
Quebec Tel	parts of eastern Quebec	Quebec Regie des Services Publics	GTE 55%[d]
New Brunswick Tel (NBTel)	New Brunswick	New Brunswick Public Utility Commission	BCE 31%[e]

(*continued*)

mately support opposite conclusions, which may be why no supporting rationale was offered in either case.

A second problem with a company definition of jurisdiction is that it brings all the activities of a given "company" within the commission's reach, whether warranted on other grounds or not. This, in fact, was the principal rationale for Bell Canada's reorganization in 1982. By creating a parent corporation that fell outside the definition of "company" and then transferring to it a number of subsidiaries, Bell was able to significantly lessen the scope of the CRTC's reach.

Insofar as the CRTC's actual powers are concerned, the act expressly authorizes it to regulate: (1) pricing, (2) the terms and conditions of network interconnection, (3) all working agreements to be entered into between a "com-

Table 19.2. *(continued)*

Island Tel	Prince Edward Island	Prince Edward Island Public Utility Commission	BCE 55%, Maritime Tel & Tel 38%[f]
Maritime Tel & Tel (MTT)	Nova Scotia	Nova Scotia Public Utility Commission	BCE 33%[g]
Newfoundland Tel (Nfld Tel)	Newfoundland	Newfoundland Public Utility Commission	BCE 55%[h,i]
Terra Nova Tel	Newfoundland		Newfoundland Tel
NorthwesTel	Yukon and Northwest Territories	CRTC	BCE[i] —

*The Provinces from west to east followed by the Territories.

†BCE (Bell Canada Enterprises) is a widely held publicly traded company.

[a]The CRTC (Canadian Radio-television and Telecommunications Commission) is the federal regulator. All the others are provincial.

[b]BC Tel is 51 percent owned by Anglo–Canadian Tel, which is 100 percent owned by GTE, a widely held publicly traded U.S. company. The remaining 49 percent of BC Tel trades on Canadian stock exchanges.

[c]Company spells its name uncapitalized.

[d]Quebec Tel is 55 percent owned by Anglo–Canadian Tel, which is 100 percent owned by GTE, a widely held publicly traded U.S. company. The remaining 45 percent trades on Canadian stock exchanges.

[e]NBT is 100 percent owned by Brunco Inc., which is 31 percent owned by BCE. The remaining 61 percent of Brunco trades on Canadian stock exchanges.

[f]Maritime Tel & Tel is 33 percent owned by BCE. The remaining 7 percent of Island trades on Canadian stock exchanges.

[g]The remaining 67 percent trades on Canadian stock exchanges. Shareholders, including BCE, are restricted to voting just 1,000 shares under 1966 Nova Scotia legislation.

[h]Newfoundland Tel is 100 percent owned by Newtel Enterprises Ltd., which is 55 percent owned by BCE. The remaining 45 percent of Newtel trades on Canadian stock exchanges.

[i]Nfld Tel and NorthwesTel were owned by Canadian National Railways until 1988. (CN is federal government owned.)

pany'' and other providers of telecom services, whether or not the latter are subject to the commission's jurisdiction, and (4) the terms and conditions under which traffic may be carried by the company.

Those powers and duties created by a number of Special Acts of Parliament should also be added to this list. The most important of these are the Bell Canada Act, the British Columbia Telephone Company Act, and the Teleglobe Canada Reorganization and Divestiture Act. Among the restrictions imposed is that it is the commission's responsibility to enforce are: (1) the obligation to serve all customers under specified circumstances, (2) the terms and conditions that such carriers may control attachment to the network of customer-owned equipment, (3) an outright ban on entry into certain types of markets, (4) limits on foreign ownership of the voting shares (20 percent in the case of Teleglobe),

and (5) a host of restrictions on the size, dimension, location, appearance, and so on, of physical plant and equipment erected on public property.

Comprehensive as this list may appear, there are a number of important elements of market conduct that the commission lacks authority to regulate. These include corporate policies related to the nature, level, and quality of service provision, marketing and sales promotion excluding pricing, investment in new capacity, research and development expenditures, and, to some extent, horizontal and vertical integration. This lack of express statutory authority, however, has not prevented the CRTC from regulating every one of these on the grounds intervention is necessary to insure that rates are just and reasonable and not unduly discriminatory!

The commission's reliance on the broad discretion afforded by its enabling legislation has been most conspicuously demonstrated in recent years in its approach to two very important issues: competition and regulatory forbearance. (On this topic generally, see Janisch and Romaniuk 1985 and Romaniuk and Janisch 1986.) Federal legislation is essentially industry-structure neutral as far as competition is concerned. Neither the Railway Act nor any other federal statute dealing with telecommunications has ever expressly conferred or ruled out (except in limited circumstances) a monopoly franchise on any carrier.

It is precisely this statutory ambivalence between competitive and monopolistic market structures that has allowed the commission to gradually introduce more competition into different segments of the industry without the need for new legislation. Since the late 1970s, for example, the commission has allowed terminal interconnection, facilities-based competition in data and private-line voice services, and liberalization of the rules with respect to enhanced services competition and resale and sharing.

This is only half the picture, however. While the CRTC has used its discretion to introduce new players into telecommunication markets, it has simultaneously withdrawn from intensive regulation of these same activities through a process of regulatory forbearance. The commission, for example, has determined in the course of a number of decisions that the following markets would be better served with less regulatory intervention on its part: cellular radio, enhanced services, data and multiline business equipment provision, satellite earth station services, and public mobile satellite communications services.

The CRTC has justified its policy of forbearance on two closely related grounds: (1) in appropriate circumstances market forces alone may be sufficient to assure "just and reasonable" rates, and (2) the costs of regulation to the industry, the regulator, and ultimately to consumers and taxpayers are not always warranted.

The difficulty faced by the commission in seeking to selectively withdraw from tariff regulation has been its questionable statutory authority to do so. The issue of the CRTC's power to suspend the tariff filing and approval process finally came to a head with the appeal by the Canadian Telecommunications Workers' Union (TWU) of a 1987 commission decision relieving CNCP of the obligation to file tariffs for its competitively provided services. The Federal Court of Appeal, although apparently sympathetic to the rationale underlying

the commission's forbearance policy, held that the relevant statutory provision was mandatory: Tariffs must be filed and approved before any tolls for services may be charged. In June 1989 the Supreme Court declined to hear an appeal.

As a result, much of the commission's efforts to reduce the regulatory burden faced by the industry has been placed in jeopardy, although certain options remain. In particular, (1) the CRTC may, in selective cases, interpret the definition of "company" under the Railway Act more narrowly and determine that certain service providers fall outside its jurisdiction in any event; (2) the commission may develop more streamlined tariff approval mechanisms; or (3) Parliament itself may enact amending legislation modeled on §16 of the Teleglobe Canada Reorganization and Divestiture Act, which expressly grants the commission broad powers of forbearance regarding Teleglobe.

The CRTC's efforts to cut regulatory costs within its jurisdiction, which includes all broadcasting, cable television, and federal telecommunication matters, appear to have been relatively successful. The CRTC's total operating budget has increased only very modestly, once inflation is taken into account, since the mid-1970s. Staff has been slashed from 492 in 1978 to 388 in March 1987. In the same period, applications processed by the Broadcasting Directorate have approximately doubled from 1,653 to 3,079. Although the number of hearings and decisions rendered per year on the telecommunications side have not increased significantly, their average length and complexity has, due in no small part to the increased participation of intervenors. In 1986 the CRTC was authorized to impose fees, levies, or charges on carriers under its jurisdiction in order to recover its regulatory costs. While a welcome source of revenue, this power carries with it the potential for conflict of interest.

Although the CRTC is nominally independent of the federal government, its decisions are not immune from government interference. The principal avenue is through "cabinet appeal" (§67 of the National Telecommunications Powers and Procedures Act). While the cabinet has rarely relied on this power of its own motion, various interested parties have increasingly resorted to §67 to challenge commission decisions—most spectacularly in the Call-Net case in 1987, discussed later. The extent of the cabinet's discretion under §67 has been held to be virtually unlimited by the Supreme Court, although this view has been questioned. For example, Romaniuk and Janisch argue that the power is not unlimited (1986, pp. 626–28).

Decisions may also be affected by cabinet policy directives (see Bureau 1988), informal consultations with government ministers and their staffs, indirect pressure—principally through ministerial speeches and statements of government policy made in Parliament or other public forums—and ultimately, through the enactment of new legislation.

The minister of communications also plays an important role in regulating the industry, principally through the authority granted under the Radiocommunications Act to control entry into telecommunications markets and to make regulations prescribing service and equipment standards. The power to control entry, however, is limited to services in which the transmitted signals are propagated through open space without benefit of a tangible, physical medium of

carriage. Such services include cellular radio, radio paging, and all local and long-distance services relying on satellite or microwave technology. No federal license appears to be required for carriers providing end-to-end service exclusively by unbroken physical medium, be it copper wire, coaxial cable, or fiberoptic.

The minister, together with the Department of Communications (DOC), also plays an important policy development role, usually in consultation with the provinces, and is ultimately responsible for all new federal legislation. As might be expected, the minister also carries considerable weight in determining the outcome of appeals to the cabinet from CRTC decisions, although in the late 1980s there has been some successful bypassing of ministerial authority.

19.2.3.2 Provincial Jurisdictions

Although now largely of historical interest in the wake of the Supreme Court's 1989 decision, each province has had one or more pieces of legislation in place governing the regulation of telecom service providers either in their own right or as one of several provincially regulated public utilities. With the exception of Manitoba and Saskatchewan, where the major provincial carriers are statutorily created and publicly owned monopolies, monopoly franchises were generally not created for individual carriers operating within provincial boundaries. Nevertheless, provincial carriers have been treated as de facto monopolies within their operating territories and have either been subject to simple rate regulation or the more complex process of capital base, rate of return regulation.

The governing regulatory principles in most provinces are essentially the same as at the federal level. The major difference has been the relative lack of speed and enthusiasm with which competition has been allowed to develop at the provincial level. The most opposed to competition, even in matters as basic as terminal interconnection, have been Saskatchewan and Manitoba. These are two of Canada's most rural, generally less well-off, and most heavily toll-revenue dependent provinces (Schultz and Alexandroff 1985, p. 73). Any incursion, however small, into the provincial monopoly is treated as a direct threat to the rural subscriber, whose political importance is considerable.

The Atlantic provinces, although poorer still, have no similar tradition of government involvement, not as great a disparity in toll versus local revenues, and no comparable political stake in preventing competition. As a result, many of the CRTC's decisions relating to competition have been adopted to a greater or lesser extent in most of these jurisdictions, albeit after a lag of some years (FP 1986a, pp. 37–51).

19.2.4 Interests the System Seeks to Protect

Canadian confederation dates to 1867, but the process of nation building has never really stopped. Canada's sprawling territory and scattered population have always demanded strategic counterweights to the threat of American domination. The ninteenth century response was a three-pronged policy of transcontinental railroads, high tariff barriers, and regional economic specialization to

compensate for the small size of domestic markets. The western economy produced agricultural products in exchange for eastern manufactured goods, while the federal government subsidized the cost of shipping the bulky, low-value produce of western farms. The policy worked, Canadian industrialization proceeded apace, and national sovereignty and economic well-being were secured.

With the decline of the railroads, however, as well as the crumbling of tariff barriers and the growth of export opportunities, new policies had to be developed. Instead of concentrating on the coast-to-coast movement of goods, the government, particularly through the agency of federal crown corporations such as Trans-Canada Airlines (TCA, later Air Canada), the Canadian Broadcasting Corporation (CBC), and similar government-initiated ventures, began to focus on the rapid movement of people and then, to a much greater extent, on the exchange of information and ideas. Today, the wrap that bind the national fabric is communication links.

Ministers of communications in the 1980s speaking on universal availability of telephone service at affordable prices gave the impression it had always been a central priority of the federal government. However, this objective has never been codified in legislation of any kind. Canadians have universal telephone service thanks to the efforts of the telephone companies and the shared priorities of their regulatory agencies.

The most complete statement of Canadian policy in the late 1980s emerged from a meeting of federal, provincial, and territorial ministers of communications in April 1987. Their communique endorsed the following six principles intended to guide formulation of government policies and regulation in the industry (see DOC 1987, pp. 3–4).

1. The future development of the industry presents uniquely Canadian challenges requiring uniquely Canadian answers.
2. Canadians must continue to have universal access to basic telephone service at affordable prices.
3. Policies must maintain the international competitiveness of the Canadian telecom sector and the industries it serves.
4. Policies must insure that all Canadians benefit from the introduction of new technology.
5. A Canadian policy must reinforce the goal of fair and balanced regional development and respond to the interests of all concerned governments.
6. Policies should be established by governments and not by regulatory bodies or by the Courts.

These principles may be difficult to reconcile. The most inherently contentious ones may be the desire to preserve low-cost, universal basic service while maintaining international competitiveness. In 1989 two studies concluded that direct-dial rates in Canada were two or more times higher than those in the United States (Koelsch 1989 and Hoey 1989). This is so because toll revenues continue to subsidize local services. A great fear of Canadian policymakers is that rate rebalancing, however justified on grounds of economic efficiency, may

imperil the principle of universality. This is discussed extensively in "Rate Rebalancing Decision" (1988, pp. 89–119).

Just how far Canadian regulators are prepared to go in protecting universal availability may be seen in a remark by former CRTC chairman, André Bureau, that even if only 1,000 subscribers "drop their telephone service because of an increase in local rates, it would be 1,000 too many" (CRTC *1987–1988 Annual Report,* p. xii). Bell Canada's local rates rose only marginally from 1983 to 1989. By contrast, from January 1987 to May 1988 alone, the cumulative reductions in long-distance rates have averaged 26 percent for calls within Bell's territory and 31 percent for calls to other provinces.

Canadians have watched U.S. rate rebalancing with intense interest. The heartening news thus far is that significant increases in the price of basic service have not been accompanied by any appreciable loss of customers. It was this fact, perhaps more than any other, that led the CRTC to conclude in its mammoth 1988 hearing into Bell Canada's application for limited rebalancing that the principle of realigning rates with costs is one that should be followed in Canada—subject to one condition. The commission has stated that if it is satisfied that a safety net can be provided for subscribers for whom access would no longer be affordable at cost-based rates, then it is prepared to approve future applications for a more efficient rate structure.

This is the source of considerable friction and hostility between the federal and provincial, especially Prairie, governments because of regional economic disparities. Most of the industries benefiting from lower costs are based in Ontario and Quebec, jurisdictions served by Bell Canada. Were the CRTC to significantly lower Bell Canada toll rates, few competitive benefits would accrue to the Prairie provinces. Should their toll revenues plunge, however, local rates for rural subscribers could soar, creating a political maelstrom.

19.2.5 The Extent of Universal Services and Challenges in Extending the Network

Canada's telecom penetration level, defined as the percentage of households with telephone service, is among the world's highest. In 1985, the Canadian average was over 98 percent, ranging between 94 percent in Newfoundland and 99 percent in Ontario. The average was just under 50 percent in 1947. (For complete data, see FP 1986a, Table 4.1, p. 205.)

Challenges to extending the national network, although great given the extent of the country and its extremely diverse topography, have become much more manageable with the advent of satellite technology and, more recently, cellular radio. It may soon be the case that there is not a single community or household in this, the world's second largest country, without access to some telecommunications facility.

19.2.6 Types of Services Offered

Most telecom services offered somewhere in the world are also available in Canada. Telecom Canada members together with Teleglobe and the nation's

independent telcos offer fully integrated, transcontinental, and international public-switched telephone services as well as MTS and WATS. MTS includes a number of long-distance calling options to nonlocal destinations within Canada, as well as to points in the United States and overseas. WATS includes a variety of bulk-rated long-distance options usually used by business customers. Outward WATS is available within Canada, while 800 service is available both on a Canada-wide and U.S.–Canada basis. By early 1989, Toronto had one of the highest subscription rates for cellular phone service of any major metropolitan area in the world.

Private lines may be leased on an individual or bulk basis from the telcos or competitive suppliers such as Unitel for voice and data communications or program transmission. Private-line services include foreign exchange (FX) lines, off-premises extensions, and tie trunks. Telesat Canada has provided satellite-based private-line services directly to users since 1986. International leased circuits are provided by Teleglobe at the point of interconnection to its gateway facilities.

An entire array of nonvoice services are also provided on a competitive basis, including data, switched teleprinter, facsimile, electronic message, mail and text services, public message, audio and video program transmission. The network market was expected to grow by 30 percent in 1989 and at comparable rates thereafter.

Among the newer technologies and service types being considered, the most promising appears to be ISDN. Canada is particularly well-positioned to take advantage of ISDN because it has been moving toward a fully digitized national network at a faster rate than any other industrialized country. It was estimated that more than 70 percent of intercity circuits would be carried on digital transmission facilities and 80 percent of local and long-distance calls would be digitally switched by 1990. (A particularly valuable study, by a former CRTC vice-chairman, is Lawrence 1989.)

Typical of the services being introduced by the late 1980s was "Alex," a Bell Canada videotex information service. It allows consumers to call up more than 120 listings on a small terminal screen, including home shopping, banking, television and movie reviews, and restaurant, travel, and transportation information. The twenty-four-hour service was initially made available to some 20,000 Montreal area households in December 1989 and was eventually expanded to other cities.

19.2.7 Telecommunications Rates and Rate Structure

In January 1986 Canadian federal and provincial ministers of communications commissioned an extensive study of the pricing objectives, principles, and practices of the major telcos and the effect of these policies on the universal availability of phone service. The result, the "Federal-Provincial Report" (FP 1986b), issued some ten months later, indicated that the two most important objectives of telcos in setting service prices were the need to maximize access to and use of the public-switched network and the need to maintain adequate

and stable revenues. Other goals individual companies mentioned as important include the need to keep rates simple and easy to administer, maintenance of customer satisfaction, efficiency, competitiveness, and equity among different classes of customer.

Notwithstanding the diversity in rating objectives, there has been total unanimity among telcos regarding the principles governing rates; the two most important ones are value of service pricing and company-wide price averaging (FP 1986a, p. 63).

Value of service pricing is most important at the local level. Generally, the larger the local calling area—whether measured by the total number of toll free numbers that can be reached, the number of main stations, or the number of access lines—the higher the monthly local rate. Business users are charged more than residential subscribers for essentially the same grade of service, as Table 19.3 indicates.

Company-wide price averaging means that customers obtaining similar services pay similar rates regardless of the actual cost of providing them. Thus, within a local exchange, all subscribers pay the same flat monthly rate regardless of usage or distance from the central office. In the case of long-distance service, all callers pay the same rate per mileage band. Company-wide price averaging, by definition, means low-cost uses of telephone service to subsidize higher-cost ones. Table 19.4 provides information on business day (peak period) long-distance rates by band for representative major companies.

Table 19.3. Monthly Exchange Local Telephone Rates*, Individual Line (January 1986)

Residence	Business	Residence as % of Business	City
11.70	31.85	37	Victoria, BC
9.28	23.74	39	Calgary, Alberta
8.30	20.85	40	Regina, Saskatchawan
7.50	20.00	38	Winnipeg, Manitoba
10.70	34.45	31	Ottawa
12.80	38.85	33	Rimouski, Quebec
12.05	35.45	34	Moncton, NB
13.10	37.50	35	Halifax, NS
12.60	38.30	33	Charlottetown, PEI
13.15	41.00	32	St John's, Newfoundland

Source: Federal-Provincial Examination of Telecommunications Pricing and the Universal Availability of Affordable Telephone Service *Working Papers*, Table 2.1, p. 64. Ottawa: Supply and Services Canada, 1986.

*Rates are in Canadian dollars.

Includes rental for rotary-dial telephone set and, where applicable, EAS.

These are flat rates, unlimited local calling. EAS is widely available, with the flat-rate calling area in Metropolitan Toronto and surrounding areas probably constituting the largest in the world.

Table 19.4. Long-Distance, Two-Point Service Rates* for Customer-Dialed Business Day, Three-Minute Duration Calls (December 1985)

Mileage	Canada to U.S.	Telecom Canada	Bell Canada	Nfld Tel	Manitoba Tel	BC Tel
10	.32	.60	.52	.75	.30	.77
50	.55	1.01	1.34	1.14	.72	1.34
100	.94	1.41	1.64	1.50	.96	1.70
500	2.04	2.55	2.04	2.34	1.50	2.24
1,000	2.46	3.00	2.04	2.34	1.50	2.24
2,200	2.78	3.30	2.04	2.34	1.50	2.24
3,000	2.92	3.30	2.04	2.34	1.50	2.24

Source: Federal-Provincial Examination of Telecommunications Pricing and the Universal Availability of Affordable Telephone Service *Working Papers*, Table 2.10, p 89. Ottawa: Supply and Services Canada, 1986.

*Rates are in Canadian dollars.

Telecom Canada and Canada to U.S. rates are those applicable to Bell Canada customers.

Off-peak discounts are generally 30–35 percent during the evening, and 50–67 percent from 11 P.M. to 8 A.M. daily. On Sunday discounts are 35–67 percent for all carriers; Bell Canada's weekend discount begins at noon Saturday. The structure and level of discounts usually does not vary between intraprovincial and trans-Canada calls.

19.2.7.1 The Level of Cross Subsidies

Perhaps the most serious consequence of setting prices for basic local services at levels designed to maximize accessibility and use has been the growing disparity between the cost and the revenues generated. To meet overall revenue requirements, rates for other services, especially long distance, have had to remain above costs. Long-distance transmission costs have fallen continuously in both nominal and real terms since the introduction of microwave in the 1950s, with no corresponding decline in rates for the most part until the 1980s.

Some indication of the resulting cross subsidy from long distance to local services is provided in a cost-revenue study released in the early 1980s (Bell Canada 1983). It concluded the cost to Bell of generating $1 in revenue from monopoly supplied local service was $1.93. By comparison, it cost only $0.32 for each $1 of revenue earned in providing noncompetitive toll services. The resulting total shortfall from provision of local services in 1982 was $1.2 billion, virtually all of which was made up from revenues generated in supplying noncompetitive long-distance services, primarily MTS and WATS.

In its 1987 application for rate rebalancing, Bell Canada supplied further evidence of the growing subsidy flowing from monopoly toll to local services. The company argued that the local/access service category shortfall was $1.4 billion in 1984 and would increase to $2.4 billion in 1986 without corrective action. The commission concurred in the need for rebalancing, but delayed restructuring rates until a complete plan for targeted subsidies was developed.

19.2.8 The Equipment Manufacturing Industry

The Canadian equipment market includes over 100 firms of various sizes, although this large number is very misleading in two important respects. First, the shares of all but one are virtually inconsequential. Northern Telecom accounts for approximately two-thirds of the telecom equipment market; its share is somewhat lower in the communications equipment market. The next largest competitor, Microtel, accounts for less than 10 percent. Other well-known firms are Gandalf Technologies (network processors, including PABXs), Mitel (a major PABX manufacturer), and NovAtel (cellular telephone terminals and systems). Northern Telecom, Mitel, and Gandalf all sell more in the United States than they do in Canada and have widely followed, publicly traded stocks.

The second point is that most firms are highly specialized. Very often, smaller producers are actually in the business of supplying larger firms specialized parts and components. Only two firms supply a fairly complete range of equipment—Northern Telecom and Microtel.

The more important foreign-owned firms include Plessey, Siemens, Ericsson, Phillips, Rolm, TIE, Toshiba, and AT&T. None has a significant share of the Canadian market although some successfully occupy niches. Many foreign-owned firms have plants in Canada, but some rely only on finished imports. During the 1970s these nonmanufacturing importing subsidiaries began to lose market share as telcos, especially those on the Prairies, increasingly switched to domestic producers. As a result, foreign, especially European-owned firms, began to establish manufacturing subsidiaries in Canada.

Northern Telecom has strategically placed manufacturing plants in all Canadian provinces; this fact alone produces strong incentives for all companies to consider the negative regional economic impact of buying elsewhere.

Although the Canadian telecom equipment market achieved sales in the vicinity of $3 billion in 1987, a substantial portion of these took place in vertically integrated or captive markets. The two biggest telcos—Bell Canada and BC Tel—each have manufacturing affiliates: Northern Telecom (53 percent BCE-owned), and Microtel, respectively. BCE also has significant direct and indirect ownership links in the four Atlantic telcos, which significantly rely on Northern Telecom for their equipment. Similarly, Quebec Tel, owned by a GTE subsidiary, Anglo–Canadian Telephone, shares the same parent as BC Tel and its preferred supplier is thus also Microtel.

Given the dominance of Bell and BC Tel as purchasers, together accounting for some 70 percent of the market, and their strong tendency to buy from their manufacturing arms—on average Bell purchases some 85 percent of its requirements from Northern, while Microtel supplies BC Tel with over 50 percent of its need—the vertically integrated market probably accounts for over one half the value of all telecom equipment sold in Canada.

Both tariff and nontariff barriers exist. The height of these barriers, however, is difficult to estimate even given a schedule of the rates. This is partly because different components are often taxed at different rates. Thus, some hardware,

including PBXs, is assessed at the maximum rate of 17.8 percent, wire and cable enters at 4 percent, and software crosses the border free. In addition, rates differ according to the degree of assembly on importation.

Nontariff barriers are by their very nature even more difficult to assess except when they take the form of virtual prohibitions. For example, if "native son" or "buy at home" policies are enforced, then nontariff import barriers become impenetrable. Other barriers of varying effectiveness include transportation and communications costs, various government design standards, regulations, and antidumping laws. There are also nonprice considerations, including the greater perceived risks of dealing with foreign sources of supply, especially when contracts are of a long-term nature; established trust in and goodwill of domestic producers leading to ingrained buyer preferences; greater availability of spare parts and technical expertise; and finally, what might be called a "follow the leader" approach, especially on the part of the smaller telcos (Beigie 1973, pp. 91–93).

The Canada–U.S. Free Trade Agreement (FTA), implemented at the beginning of 1989, requires elimination of tariffs over a ten-year period, and nontariff barriers may also be expected to diminish.

Evidence exists suggesting economies of scale, and possibly of scope, have historically been an important factor. As long as trade barriers confined Canadian producers to the domestic market, few firms could expect to grow to minimum efficient size. The eventual emergence of only one world-scale manufacturer of telecom equipment in Canada is therefore not surprising. The opening of the U.S. market after the AT&T divestiture reduced the significance of Canada's own small market as a determinant of market structure, as Canadian firms could now spread costs over longer production runs.

Just how important foreign, especially U.S., markets have become can be gauged by the relatively small percentage of sales accounted for by the domestic market. Northern Telecom, for example, had total revenues of U.S.$6.1 billion in 1989—some 60 percent of it in the United States and 25 percent to BCE. Mitel generated only 16 percent of 1989 sales in Canada, while for Gandalf it was 30 percent.

19.2.8.1 Procurement Policies

For the better part of this century Bell Canada has procured most of its equipment from its manufacturing affiliate, Northern Telecom. Their supply agreement designates Northern as Bell's preferred supplier and requires Northern to supply as much of Bell's equipment needs as it is able to meet at reasonable prices. Bell, however, is not required to make its purchases from Northern if better products or terms are available elsewhere. Conditions of sale are normally subject to negotiation with one important exception: Bell is accorded "most favored purchaser" status. Northern's compliance with the agreement is monitored annually by an independent audit of its sale prices.

This agreement was the object of intense scrutiny by both the federal com-

petition law authorities and the CRTC during the 1970s and early 1980s. The principal concern, and conclusion, of the director of investigation and research, Canada's chief enforcement officer under the Competition Act and its predecessor legislation, was that Bell's vertical relationship with Northern was having an inimical effect on competition in the equipment industry. The remedy initially proposed by the director was structural separation of Bell Canada from Northern Telecom. The director was later to argue only for the introduction of a competitive bidding process in the procurement procedure followed by Bell Canada.

After an exhaustive study of vertical integration, the Restrictive Trade Practices Commission (RTPC) concluded in 1983 that, on balance, the benefits of Bell's relationship with Northern Telecom outweighed the costs. The RTPC's recommendation was essentially that the status quo should be maintained (RTPC 1983, pp. 199–211). Northern Telecom was Canada's only major success story in the high-technology sector in the early 1980s, so it is extremely unlikely the government would have allowed it to be tampered with by overzealous competition law enforcers in any event.

The CRTC's concerns in the 1970s were of a different nature. What the regulator wanted to know was how the Bell–Northern Telecom supply agreement guaranteed that Northern, even if it offered Bell the best prices available in Canada, was still not overcharging. The commission argued that Northern's position as the low-cost, dominant producer in Canada, protected by high tariff barriers, made it possible for Northern to charge monopoly prices even to its best customers. The question, therefore, was what assurance did Bell have that it was receiving the best possible prices?

If the prices were higher than those possible in a more competitive environment, the commission reasoned, then Bell, through its ownership of Northern, could be making profits in excess of its allowed rate of return. To minimize the possibility of this occurring, the commission directed Bell to provide annually detailed price information on equipment sold by other Canadian suppliers comparable to that purchased by Bell from Northern Telecom.

Early in the 1980s, the CRTC also began to express a very different concern. Observing that Northern was then going through difficult financial times—returning only a 2 percent dividend on $100 million Bell had just spent on a major Northern share issue—the CRTC expressed concern Bell subscribers were being asked to subsidize Bell's investments in nonregulated markets. To counter this possibility, the Commission adopted a somewhat arbitrary and controversial solution. It simply deemed the return on Bell's investment in Northern Telecom to be 15 percent after tax for the purposes of calculating Bell's regulated revenue requirement. This solution was later modified to make it more equitable to shareholders; it was later extended to apply to Bell's average total investment in all other subsidiaries and associated companies. However, Bell's 1982 reorganization undid much of what the commission had hoped to accomplish because Northern became a subsidiary of unregulated BCE; it was no longer a subsidiary of regulated Bell Canada.

19.2.8.2 Policies on Terminal Attachment

The liberalization of rules dealing with attachment of customer-provided equipment began in a very limited way with the Terminal Attachment Program (TAP) in the mid-1970s. Participants were the federally regulated carriers acting in cooperation with certain provincial governments and a variety of manufacturers and major users. Between 1976 and 1979, a number of carrier tariffs were revised to permit direct connection of a limited number of customer-provided, network nonaddressing (i.e., nondialing) terminal equipment as long as it had been tested and certified by the DOC. The first types of equipment permitted included answering, dictation, and two-way voice recording devices. Under Phase II, alarm reporting, graphic, facsimile, and data modems, and traffic measuring equipment were also allowed. Other categories have subsequently been included.

The major breakthrough came with the CRTC's interim and then final decisions (in 1980 and 1982, respectively), to authorize terminal interconnection of virtually all types of customer provided equipment to the network, provided certain technical standards were met. Somewhat surprisingly, it was a formal application in 1979 by Bell Canada to the CRTC to inquire into the merits of liberalized terminal attachment that triggered the entire process in the federal jurisdiction. Although most provincial jurisdictions have followed suit, Manitoba and Saskatchewan had still maintained restrictions as of 1989.

The process of testing and setting standards is handled by DOC in concert with the Canadian Standards Association, an independent body comprised of telecom service providers, equipment manufacturers, and user groups.

19.2.9 International Trade and Collaboration

Canada has quite a number of treaties and arrangements with the United States and other nations, both bilateral and multilateral. In fact, North American networks are so interconnected and interdependent that at times it is more accurate to think of them on a continental rather than national basis (Grant 1988).

The FTA with the United States that came into effect at the beginning of 1989 is the first international agreement to deal with telecom services, and it significantly precedes possible similar developments in the General Agreement on Tariffs and Trade (GATT).

In view of Canada's more cautious approach to competition, the agreement recognizes the right of either country to retain monopolies with respect to "basic" telecom services. However, with respect to "enhanced" and "computer" services there is a commitment to maintain and support further development of an open and competitive market. Measures envisaged included structural separation, although at the time the Agreement came into effect Canada had not insisted on separate subsidiaries for carriers providing enhanced services.

To take advantage of the prospective nature of the agreement, the Canadian government announced a limit of 20 percent on foreign ownership of Type I carriers (facilities based) with no restrictions on Type II (nonfacilities based) carriers in July 1987. Existing foreign ownership, especially of BC Tel, was grandfathered in.

The agreement also contains a provision very dear to the hearts of Canadian policymakers concerned that trans-Canada traffic may be carried on American facilities. Nothing in the agreement is to be construed to prevent a party from maintaining or introducing measures requiring basic services to be carried on its network within its territory. Canada has already announced that a statutory obligation will be placed on its carriers to employ Canadian facilities wherever feasible.

The prevailing conventional wisdom is that the FTA will have little direct impact on telecommunications. The agreement does not require policy changes, does not address the pivotal issue of competition in public long-distance voice, and merely confirms existing regulatory policies governing enhanced services. This may well be too narrow a perspective.

First, the mere inclusion of computer and enhanced services in the agreement is, in and of itself, an important signal of the centrality of telecom services in contemporary international trade. Second, while it is true that the agreement does not change the ground rules, it does mandate a positive duty to take effective measures to ensure further development of an open and competitive market in a crucial growth area.

Third, the agreement preserves the status quo of a remarkably open border in telecommunications and will provide barriers against visceral protectionist reflex actions in less prosperous times. For example, the agreement applies to the movement of information across borders and access to data bases; this indicates a significant commitment not to impose limits on transborder data flows in the longer run. Fourth, if multilateral agreements are to include telecom services, then they will need to respect national concerns to protect basic networks. In this, Canada is really no different from other countries. It will simply not be possible to export the American fully competitive model, but it may be possible to espouse the sort of careful delineation and segmentation to be found in the FTA. Thus this U.S.–Canadian experience should be of the utmost interest in the ongoing GATT negotiations (Janisch 1987a).

A major irritant in Canada–U.S. relations was not dealt with in the Agreement. There has been a persistent U.S. demand that Canada's vertically integrated market structure be revised along the lines adopted in America. U.S. manufacturers have argued that Northern Telecom's preferred supplier arrangement with Bell Canada is inconsistent with the spirit of free trade. Despite the relatively small size of the Canadian market, there may well be pressure on the U.S. administration to use its powers under the Omnibus Trade and Competitiveness Act of 1988. Canada, no doubt, will be very resistant to any such export of American domestic solutions to telecommunications issues, but will also be very concerned to preserve its access to U.S. markets (see Janisch 1989).

19.2.10 The Policy Role of Trade Unions

The fact that Canadian trade unions have had very little say in policy formation in any area, much less telecommunications, should come as no surprise to observers of Canadian politics. In the country's history not once has a union-affiliated or labor-supported political party held the reigns of power at the federal level. Provincially, there have been several New Democratic Party (NDP) governments at different times, but without much impact on national telecommunications policy.

This is not to say labor has been entirely ineffectual in putting forth its various positions on important issues. The TWU and the Canadian Federation of Communications Workers (CFCW), among other unions, have been very active as intervenors in federal and provincial regulatory hearings, before parliamentary committees considering new legislation, and elsewhere. The impact of these activities on government policy, although difficult to gauge, has probably not been all that significant given the promonopoly, pro–status quo views typically adopted by the labor union movement. In fact, the progressive shift to increased competition and less regulation in recent years, stands in direct opposition to the positions taken by Canada's major trade unions.

19.3 Process of Change

19.3.1 Emergence of the Electronic Industry

Although some 40 percent of Canada's GNP comes from resource-based industries, there are clear signs of a move toward an information-based economy. Symptomatic of this has been the rapid rise in the service sector compared to the relatively small industrial sector. At the same time, the "information economy"—defined to include computer manufacturing and the secondary information sector (information services produced and consumed internally, such as the market research department of a manufacturing firm)—accounted for some 35 percent of Canada's domestic GNP in 1971, and 47 percent in 1981. Of particular interest is the growth in the data communications market.

Although Canada's overall R&D effort is generally acknowledged to be weak, the information technology sector is something of an exception. The computer and telecommunications industries spent about $1 billion on R&D in 1986, about 30 percent of total industrial R&D. BCE, far and away Canada's largest R&D spender, spent some $623 million that year, 22 percent of all R&D expenditures by Canada's private sector.

Still, in 1986, apart from BCE and a handful of other major companies such as IBM Canada and Mitel, which spent $89 million and $52 million, respectively, along with $44 million spent by the federal government, the vast majority of Canadian firms were simply too small to mount sustained R&D efforts on their own. Furthermore, the overwhelming presence of BCE meant that Canada's information technology R&D efforts were far too concentrated on the needs of the telephone industry.

In March 1987, the federal government announced a national science and technology policy entitled Innov-Action. It stressed the need to improve the productivity and competitiveness by assisting industry in identifying and securing economically exploitable niches in strategic technology areas and improving the transfers and commercial application of new technologies through greater cooperation among government, firms, and universities.

19.3.2 Disagreements within Government

There are considerable tensions and differences within the federal government as well as between different levels of government, although not on the scale of the great "Telecom Wars" within the Japanese bureaucracy in the early 1980s (see Janisch 1988b). Some of these have been brought about by structural defects in the machinery for policymaking; others reflect genuine differences as to appropriate policy, especially with respect to greater reliance on competition.

Around the turn of the last century a compromise was reached regarding independence and political accountability in regulation. For a time it worked well enough because most disputes were seen to involve complex, technical rate issues, and the federal cabinet was understandably reluctant to intervene. By the 1980s, however, with the fragmentation of monopoly, it became apparent there were winners and losers in the regulatory game and what were previously seen as technical issues had important distributional effects for which there should be political accountability (Janisch 1979). As a result, parties in the regulatory process have begun to push their claims at a political level, and the cabinet is demanding that it, not the CRTC, make major policy decisions.

This has created something of a policy vacuum: The cabinet asserts it must make policy, but does not have the expertise or—as yet—legal authority to do so, while the CRTC—which has both—becomes progressively more reluctant to act decisively.

The most dramatic instance of a breakdown in understanding of the role of an independent regulatory agency in a parliamentary system happened in 1987 in Saskatchewan. There the Conservatives, in opposition, demanded that Sasktel be brought under independent regulation. When, on their election, this was done, they complained bitterly about the political insensitivity of some of the decisions of the new Public Utilities Review Commission (PURC). The relationship between government and regulator was not made any easier by PURC having its decisions vindicated in the Saskatchewan Court of Appeal, which was highly critical of unauthorized government interference.

Things came to a head when PURC had the audacity to propose that rural telephone rates should be cost justified. The government, entirely reliant on rural support (it did not have a single urban seat) responded by firing all the PURC commissioners (Janisch 1987b). While a somewhat extreme example, much obviously remains to be learned about the give and take required in the relationship between government and an independent regulatory agency.

The other structural issue concerns the federal DOC. While it had clearly been envisaged in 1969, when the DOC was established, that it would be the

primary telecommunications policymaker within the federal government, it was widely agreed by the 1980s that DOC had failed to assert itself effectively. Reasons include its being given little actual decisionmaking authority, especially compared with the CRTC; its not having been blessed with strong ministers except in its earliest years; its high-profile responsibilities in broadcasting and the cultural industries have diverted time and energy away from telecommunications; and the absence (until the very end of the 1980s) of any clear national jurisdiction and the resultant nonstop squabbles with the provinces have sapped whatever creative abilities it might have had.

This is not to say there have not been many policy proposals over the years. In Canada there never has been a shortage of proposals; the problem has been with implementation!

The earliest of the studies was the ambitious Telecommission in 1971, which undertook a wide-ranging review of all aspects of telecommunications policy (DOC 1971). This was followed by the Green Paper (Canada 1973a), the Grey Paper (Canada 1975), and three proposed Telecommunications Acts in 1977–1978. None of these bills went beyond first reading. Despite all the study, no provision had been made to deal with competition, even though it was quite apparent by the late 1970s that this was the crucial issue.

There was a report from the Computer Communications Task Force (1972) followed by a government policy statement (Canada 1973b). Nothing concrete came of these proposals. A similar fate awaited the report of the Consultive Committee on the Implications of Telecommunications for Sovereignty (1979). The 1980s saw a large number of studies sponsored by DOC, but little actual policy implementation. (See the list in Janisch et al 1987).

The general position of the DOC has been cautious, especially with respect to the introduction of competition. However, there have been other voices within the government that have spoken more forcefully. For instance, the Economic Council of Canada (ECC), an advisory body, has urged greater reliance on competition (ECC 1981, pp. 37–50, and 1986, pp. 38–45). The director of investigation and research has been a very active intervener before the CRTC and certain of the provincial regulators.

The most important indication of emerging new players in policymaking within the federal government may be found in a long-running battle over the future of Call-Net, a would-be enhanced service competitor. What is intriguing about this saga is the evidence that it provides of the minister of communications being outmaneuvered by a cluster of ministers more favorably inclined to support competitive entry.

On the face of it, Call-Net, which provided a computerized long-distance billing service for small businesses that allows easy allocation of calling costs amongst clients (and is thus particularly popular with smaller law firms), should have been quickly knocked out of business. The CRTC ruled in early 1989 that Call-Net amounted to an unauthorized long-distance service and was not a truly "enhanced service." DOC agreed. The cabinet previously had deferred to the DOC when a matter came before it; however, Call-Net has been kept alive as a result of successful lobbying of the Departments of Regional and Industrial

Expansion, Finance, and Consumer and Corporate Affairs, as well as the Office of Privatization and Regulatory Affairs. (It is not easy to identify precisely where support is coming from because of the secrecy surrounding cabinet appeals, itself a matter currently before the courts.) In any case, the company has remained in business, and the rules governing resale and sharing were liberalized by 1990.

It appears that as concern for telecommunications issues permeates more broadly within the federal government and lobbyists employed by would-be entrants learn to exploit the different interests involved, opportunities will emerge to remove policy logjams. It remains to be seen whether these actors will be as successful as Japan's MPT and MITI in arriving at a workable compromise between stability and change (see Janisch and Kojo 1991).

19.3.3 Impact of Reforms in the United States, Japan, and Great Britain

Canadian identity all too often finds its expression in anti-American sentiment, so it is not surprising to find little overt recognition of the impact of U.S. reforms. Indeed, there has been a consistent tendency to exaggerate the disruptive effects of change to the south. For instance, a minister of communications on one occasion expressed profound condolences to the American people for the confusion caused by divestiture and competition and assured Canadians that they would not be subject to any such catastrophe.

The usual way of discounting the relevance of the American experience is by ridiculing the unalloyed free enterprise, free market ideology said to lie at the heart of the move to competition. Canada is portrayed as a more caring country that has never adopted such a philosophy and is not prepared to jeopardize universal access at affordable rates. (For an excellent review of U.S. developments and their significance for Canada, see Schultz 1989.)

Evidence from the United States that competition can be introduced without any subscriber drop-off, the success of targeted subsidies, and the staying power of MCI and Sprint in the face of prophecies of doom have gone some way to mute the criticism. Still, continuing nationalistic sensitivities make it important to distinguish between the very significant actual impact of U.S. reforms and the inadvisability of openly acknowledging this reality. This is not to suggest Canada will simply eventually "go American"; there are too many important differences for that to happen.

Canadian interest in Japanese reforms only arose in the late 1980s. It is probably fair to say that virtually nothing was known in Canada of the organization of Japanese telecommunications markets until then. Interest perked up with passage of legislation privatizing NTT, opening domestic markets to competition, and reorganizing the structure of Japan's international telecommunications. Even then, however, this curiosity was limited to a few academic investigations and studies (e.g., Janisch and Kurisaki 1985). Almost out of the blue, however, appeared the July 1987, "A Policy Framework for Telecommunications in Canada," issued by the Federal Minister of Communications (DOC 1987). It represented a commitment to introduce new legislation, sub-

stantial elements of which appeared to be based on Japanese developments. The minister specifically proposed dividing the industry into Type I (facilities-based) and Type II (nonfacilities-based) carriers, just as Japan had done, with restrictions on ownership, facilities, and the types of activities that could be undertaken in each category.

With DOC's release in January 1988 of its "Proposed Guidelines for Type I Telecommunications Carriers," however, it became clear that little more than the nomenclature had been borrowed. Whereas the Japanese had arrived at this division for the purpose of reorganizing its industry by allowing in substantial competition, Canadian use was much more restrictive.

Competition among the four subclasses of Type I carrier, itself an unnecessary complication avoided in Japan, will be severely limited by specific entry requirements for each subclass. Canadian concerns with universality, a structured (i.e., regulator rather than market-controlled) approach to rate rebalancing, and a general national penchant for caution, have all combined to minimize the practical effect of the Japanese experience for Canada. Indeed, it appears that the primary purpose of the July 1987 policy was to restrict foreign ownership to 20 percent in Type I carriers in advance of the Canada–U.S. FTA (see Janisch 1988c).

Just as Canadian policymakers reject the notion that competition can be introduced before rates are rebalanced, so, too, do they reject British and Japanese approaches to the introduction of competition. Favorable terms for interconnection, as developed by OFTEL for Mercury in Britain, or no specific access charges at all for new entrant competitors, as in Japan, have, at least prior to 1992, been summarily rejected as inapplicable to Canadian circumstances.

The pessimistic Canadian assumption is that competition cannot be introduced at this stage without harm—local Peter will have to pay long-distance Paul. The British, and the particularly optimistic Japanese, appear convinced that rapidly expanding markets mean competition can be introduced without harm. Canadians are quick to point out that competition without rate rebalancing will inevitably be contrived and orchestrated as well as being of questionable economic validity. To this, the Japanese and British reply, some competition is better than none and many of its benefits can be obtained without waiting for "perfect" competition in a fully rate-rebalanced world (see Janisch 1988b).

19.3.4 Positions of Political Parties and Major Interest Groups

There are three major political parties in Canada—Liberals, Conservatives, and New Democrats. There has been a Liberal prime minister most of the time since 1921, with the party last turned out in 1984. Traditionally viewed as the party of the (eastern) middle class, the Liberals can be socially activist, but conservative in economic and foreign policies. Based on several drafts of proposed legislation in the 1970s their telecommunications policies are neither strongly for nor against competition; if anything, they are against deregulation.

The Conservatives, in power since 1984, are more cautious fiscally, less adventurous on social policy, and generally tend to be the party of rural voters, small business interests, the working class, and the well-off. They have tended to favor less regulation and the cautious introduction of competition on telecommunications.

The New Democratic Party is the voice of social democrats, organized labor, and social reformers. It has never held power federally. Its policies are strongly promonopoly and proregulation.

These generalizations, however, have little application provincially. In Saskatchewan, for example, where the carrier is publicly owned, all three parties are uniformly against competition. The 1987 annual TWU convention amply demonstrated this point. There, addressing the delegates and assuring them "we stand united, shoulder to shoulder against competition" was none other than Saskatchewan's minister of communications, from the most conservative of Conservative governments in Canada!

Canadian interest groups, as might be imagined, are spread across the entire spectrum in their views on policy. The Consumers' Association of Canada (CAC), speaking for some 120,000 contributing members, is, of all Canadian interest groups, perhaps the most difficult to fathom. Although it strongly supported introduction of competition in provision of terminal equipment in the past, it came to support the status quo by the late 1980s. It has argued against facilities-based competition, against rate rebalancing, and generally against reductions in the regulatory burden facing monopoly carriers. It does favor regulatory forbearance for nondominant carriers in competitive markets. CAC's views are essentially governed by a single overriding objective: keeping local rates at present levels.

Canadian trade unions such as the TWU and CFCW have virtually mirrored CAC on every issue but one. Labor both opposes competition and strongly rejects deregulation, regardless of the nature of the market or the individual participants in it. Unlike CAC, however, which identifies itself with the interests of local subscribers, the labor unions have offered every reason—except that union jobs and pay scales may be imperiled—for their opposition to competition and deregulation.

Procompetitive forces are generally to be found in the business community, including equipment manufacturers and larger institutional users. These groups have consistently supported such policies as liberalized entry into facilities-based service provision, resale and sharing, enhanced services competition, and unrestricted terminal attachment. Most have also argued for structural separation of Bell Canada from its manufacturing arm and from its affiliates engaged in selling and installing customer premise equipment. In addition, they have called uniformly for adoption of a fully distributed as opposed to incremental costing approach during the CRTC's multistage hearings preceding the development of a formal costing methodology. The only major issue on which competitive service providers have tended to diverge from larger business users relates to the lessening of regulation. Many users stand to benefit from aggressive pricing policies by the major carriers. Competing suppliers in such areas

as customer premises equipment, enhanced services, and resale and sharing, on the other hand, may face more vigorous competition if the regulatory burden facing major carriers is lifted.

19.3.5 Exceptions to the Telecommunications Monopoly

The provision of basic switched voice services, at both the local and toll level, remains the preserve of Canada's monopoly common carriers. Nevertheless, impressive inroads into other product and service areas have been made over the past decade.

Competition is most pronounced in the manufacture, sale, installation, servicing and repair of customer premises equipment. While Northern Telecom retains its dominance in the business office switchboard (PBX) market, the key telephone systems market is more wide open. The markets for mobile and cellular radio as well as radio paging, alarm, and similar services are quite competitive. Interconnection of radio common carriers to the networks of federally regulated telcos was authorized by the CRTC in 1984.

The introduction of cellular radio in Canada paralleled the approach taken by regulatory and government authorities in the United States. The governing principle in Canada is that entry will be limited, via federal controls over radio spectrum allocation, to two sets of carriers, a single, federally licensed national carrier and the major wire-line carriers operating within their regional territories (DOC 1984). DOC selected Cantel as Canada's national cellular carrier in December 1983, a little over a year after it first issued calls for applications. Selection was based on the assumption that Cantel would be a wholly Canadian-owned company and its promise to employ only domestically developed and manufactured cellular equipment. Yet, barely a year after the license was awarded, Ameritech Mobile Communications, a subsidiary of a Baby Bell, purchased a 20 percent equity interest. This was sold to Canadian investors in 1987. Also disappointing to the DOC was Cantel's subsequent failure to adopt Canadian technology. Instead, it entered a licensing agreement to use technology from Ericsson.

Overall, the choice of a duopoly market structure for cellular service appears to have been largely vindicated. In jurisdictions where Cantel has been allowed to interconnect with the local switched network, competition between Cantel and the telcos or their affiliated cellular divisions has been vigorous and intense.

Another promising area for increased competition has been resale and sharing of various telco-provided services. Terrestrial and satellite transmission and switching capacity can now be leased for the purpose of providing enhanced services, data services, noninterconnected long-distance voice services, local voice services except public pay telephones and, subject to stringent limitations, interconnected long-distance voice services.

The principal restrictions within federal jurisdictions are concerned with making sure each telco-provided circuit is dedicated to one user, including the "leaky PBX" problem. MTS may be resold or shared to provide MTS only (e.g.,

hotels reselling MTS to their customers). There are no restrictions on resale and sharing of data services, basic local voice services excluding public pay telephone service, and enhanced services (provided their primary purpose is not provision of MTS, WATS, or pay telephone service).

The primary goal of the CRTC's policies on resale and sharing is clearly to prevent the erosion of revenues from MTS, WATS, and public pay telephone services—the primary sources of the cross subsidy to local service. In practical terms, this means that the provision of data services is the only area in which competition is likely to be meaningful and vigorous in the resale market. The rapid expansion of public and private value added networks, especially in non-voice applications, appears to bear this out.

The only other major sector of the telecom services market in which competition has been introduced and continues to expand is provision of private-line voice and switched public data services. The major national competitors are the telcos, Unitel, and, as of 1986, Telesat Canada. Unitel's participation was limited to the federal jurisdiction when provinces had the power to refuse it the necessary interconnections. Telesat was similarly limited to the federal jurisdiction and Alberta.

Two other areas of potential competition merit some mention. First are the CATV companies, which are considered broadcast media in Canada and are regulated under the Broadcasting Act. Because they own no switching capacity and provide only one way, noninteractive broadcast service, they are not viewed as a major competitive threat to the telcos. This may be a dangerous misconception, however. CATV companies have attained remarkably high penetration, about 60 percent of all households, and, given switching equipment, could begin to provide a wide variety of services.

The threat goes both ways, however. With increased telco reliance on fiber-optic, not to mention the progress in deploying ISDN technology, the day may not be far off when telecom services begin to encroach on the territory of CATV providers. The only legal impediments to this are the restrictions on companies such as Bell Canada from influencing in any way the content of messages they carry and the prohibition on holding broadcasting licenses. Given the progress of technology, however, this prohibition is already being violated to the extent electronic messages are transformed by computer processing and then reconstituted at the intended destination. Some resolution to this potential conflict, including even a decision to allow the telcos and CATV providers to compete head on, will inevitably be called for. Indeed, DOC has commenced a wide-ranging inquiry into convergence (see DOC 1989).

Future competition may come from Cantel, the national cellular radio provider. Once Telesat launches the world's first mobile telecommunications satellite system in partnership with the American Mobile Satellite Consortium, as it plans to do by 1993, it will possible for Cantel to provide coast-to-coast cellular service completely bypassing the terrestrial carriers. If nothing else, this possibility increases pressure on the CRTC to introduce rate rebalancing and allow long-distance competition between Canada's two national terrestrial systems.

A third source of potential competition Canadian Satellite Communications (Cancom), which was licensed in the early 1980s to provide both DBS and satellite-to-cable service to remote northern communities. Since then, it has managed to expand its mandate to include the more populous southern market. By the mid-1980s it had become an aggressive marketer of data communications services.

19.3.6 Policy Positions on Bypass

The CRTC has been a jealous guardian of long-distance monopolies in public-switched voice services within its jurisdiction. Any attempts at bypass by supplying MTS/WATS alternatives have been systematically prohibited. The Call-Net case provides a very useful example.

In another case the CRTC received a complaint from BC Tel that its toll revenues were being threatened by discount U.S. toll services provided by Camnet and Longnet. These companies had been leasing toll circuits from BC Tel, originating in Vancouver and terminating just inside the U.S. border some thirty miles away. They then began offering BC Tel subscribers access to lower priced long-distance service to U.S. destinations. It also announced plans to later provide trans-Canada service via the United States. After a brief hearing to consider the problem, the commission announced that it would authorize BC Tel to restructure its short-haul rates to the United States to make the competitive service offerings provided by Camnet and Longnet unattractive. Little has been heard from Camnet or Longnet since.

19.3.7 The Long View

Even as pressures for change continued to build, many decisions were put off awaiting the outcome of the jurisdiction issue. With federal supremacy established, this backlog can be addressed. The issues include increasing concern for competitiveness in a global economy, the enhanced credibility of Unitel as a competitor, deepening divisions within Telecom Canada and the federal government, the future of Teleglobe Canada, a greater willingness on the part of the federal government to assert itself with respect to a national dimension in policy, and the growing strength of the procompetition business lobby.

The FTA with the United States deals specifically with the further development of a competitive marketplace in enhanced services. It is likely that the indirect impact of the agreement will extend far beyond enhanced services. The most effective arguments for change in the Canadian industry have always been those closely linked to the international competitiveness of Canadian business, especially when compared to its U.S. counterpart. In view of the ever-increasing importance of telecom services to business, arguments in favor of choice and the benefits of competition will no doubt receive a more sympathetic hearing than they did in the past.

If Unitel has not been an aggressive competitor in the past, it is because it is not a genuine new entrant bringing a fresh approach and the sort of entrepre-

neurial drive and opportunism of Bill McGowan and MCI. Full privatization in 1988, however, removed the restraining hand of government ownership through CN Rail, while major managerial reorganizations and the infusion of capital, coupled with the drive and verve of Ted Rogers, promise to make the new Unitel a far more effective competitor.

On June 12, 1992, the logjam in full facilities based long-distance competition was broken. The CRTC ruled in favor of "open competition." The government gave Unitel permission to provide national long-distance service. It also approved BCRL's (a joint venture of B.C. Rail, Call-Net and Lightel) regional long-distance service and greatly expanded reselling. The ruling was appealled by Bell Canada; however, it appears that the government has irrevocably moved away from protecting the Bell monopoly in favor of a more liberalized environment.

It is evident that telcos no longer share the same values. Bell Canada and BC Tel recognize the inevitability of competition and through rate rebalancing seek to position themselves to greatest advantage when it finally comes. There is no basic tenet of monopoly service that they are not prepared to seriously reconsider. By contrast, the provincially based companies cling with varying degrees of desperation and tenacity to the received truths of monopoly telecommunications. Under these circumstances, although change will be resisted, there will be less of a united front among the incumbent firms.

As the Call-Net saga indicates, the relatively conservative DOC no longer has a monopoly on policy making within the federal government. Significant pockets of new interest and expertise are found in a number of other ministries and bureaus. These agencies are seeking their own sources of information and attracting their own client base independently of the DOC. This will make it possible—in an era of greater politicization of regulation—for determined lobbyists to finesse restrictive regulation.

Critical issues with respect to Teleglobe remain to be dealt with. These include its relationship with Bell Canada, its protected status as Canada's only overseas carrier, opportunities for bypass via the United States, and the appropriate form of regulation.

The federal government may at last be prepared to take a firm public stand to implement the Supreme Court's decision on jurisdiction, as may be seen from these excerpts from a June 1989 statement by the minister of communications (Masse 1989):

> The real issue involves the refusal by certain provinces to open their markets to a level of competition equal to that in Ontario, Quebec, and British Columbia. This refusal has considerably limited the choice of services and equipment available in the Prairies and the Maritimes.
>
> At the same time it has made it difficult to sustain effective competition in networks and services on a national scale. Today anyone wishing to offer services across Canada has to obtain approval from no less than eight regulatory agencies, which is extremely time-consuming and costly.
>
> Given the unified markets of our major trading partners, which are also our

> major competitors, can we afford not to move toward a significant simplification and unification of our own?

The minister's warm endorsement of the recommendations of the 1989 Report on ISDN Implementation in Canada (Lawrence 1989)—which called for national policies and standards in order to achieve the competitive objective envisaged for ISDN—also acts as a further indication of a growing recognition of the need for a stronger federal role. Whether all this will carry over into much-needed new legislation, however, is still unclear.

Masse acknowledged that he was not making original observations, and quoted from a May 1989 public statement of the Information Technology Association of Canada (ITAC) that ". . . the current regulatory regime is a direct threat to the international competitiveness of Canadian companies." As ITAC had emphasized at the time, it is an association representing all facets of the information and telecommunications industry. This is the sort of voice no government can ignore, and it will be joined by new organizations of major users that will supplement and reinforce the role of the Canadian Business Telecommunications Alliance (CBTA). An indication of an increased role for the user community may be seen in the participation of a representative of CBTA in Melbourne at WATTC in 1988, the first time a business user group has been represented on a Canadian delegation at an international telecommunications forum.

The minister also highlighted the belief by the Europeans, Americans, and Japanese that ". . . communications must increasingly develop in an open market." What he did not go on to say, but what will be increasingly important in the Canadian debate, is that it is becoming evident this can be achieved without any threat to universal service. Experience seems to indicate that, while local rates may have to go up, network drop-off can be avoided through targeted rather than undifferentiated subsidies. Also, some of the worst attributes of regulated competition can be avoided if the regulator is determined to wean competitors away from a subsidized form of entry.

The late 1980s were a time of considerable reticence in policy development and, above all, implementation. Yet it is evident that the Canadian telecommunications industry and its regulators have managed to adjust to much change in the past and have displayed considerable ability to adopt unique institutional structures appropriate to the times. For Canada, a history of proud achievement must not be used as a justification for the status quo, but as an inspiration as to how change can be successfully accomplished.

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