EXTENDING TELEPHONE TO CANADA'S NORTH:
EXPERIENCES WITH SERVICE AVAILABILITY,
QUALITY AND RATE

Uschi Koebberling
Simon Fraser University

ABSTRACT

The article analyzes the development of telephone services in the Canadian Arctic, contrasting Inuit stated needs for services with government policies, institutional arrangements and actual service development. It reviews experiences of the Inuit particularly with telephone quality and rates and concludes with an assessment of policies and institutional arrangements to use telephone services as an essential instrument for development, where development pointedly includes social, cultural, and institutional features.

INTRODUCTION

Telecommunications in the Canadian Arctic have been inadequate for many years. The vast land space and sparse population, of course, make telecommunications costly and unprofitable to provide. But it is to be emphasized that
these same factors also highlight the vital importance of telecommunications in alleviating northern isolation and promoting economic and cultural growth. Telecommunication services are an essential instrument for development, whereby development also includes social, cultural and institutional features.

An important factor that has perpetuated the inadequacy of telecommunications facilities and services in the North has been the application of southern-based costing, pricing and organizational principles which are unsuitable for this radically different northern environment.

EARLY TELECOMMUNICATION POLICIES AND INSTITUTIONAL ARRANGEMENTS

Telecommunications developments in Eastern and Western Arctic have varied significantly, due to the different economic development and government involvements in these regions. The Eastern Arctic has generally remained more isolated. Geographical barriers, permafrost, unpredictable weather, atmospheric conditions and land mass features (broken islands, mountains), mean that landline facilities could not be set up.

Telecommunications possibilities were thus severely limited until the employment of satellites. Industrial development has concentrated in the West with its mineral and petroleum resources. The solid land mass allowed more easily the establishment of microwave towers and landlines. The close proximity to Alaska also influenced telecommunications in the western North.

Radio telephone entered the Arctic in the late 1920s, just as airplanes began to provide easy access. This was a basic service to the operation of RCMP, military, mission and trading posts and primarily used to communicate the directives of southern agency personnel.

In the Western Arctic the Royal Canadian Corps of Signals (RCCS) constructed a radio telegraph system which linked Aklavik and other more southern locations in the Canadian Northwest to Edmonton for military communication. In 1947 responsibility was transferred to the Department of Transport (DOT) (Stach, 1969: 147; RCCS, 1962: 284), and in 1957 the RCCS system became completely integrated into DOT’s existing network. The following year the department began to transfer its facilities to Canadian National Telegraph (CNT), a crown corporation and subsidiary of Canadian National Railways. CNT thus became the beneficiary of the monopoly for servicing the Canadian Northwest.

CNT was instructed to operate its system on a joint military-commercial basis (CNT 1977: 1–6). In 1978 CNT reorganized and renamed itself Canadian National Telecommunications, and created a wholly-owned subsidiary,
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NorthwesTel, which was mandated to be self-sufficient in providing its northern services. NorthwesTel’s service area encompasses 2.35 million square kilometers with 70,000 inhabitants, but in 1985 had fewer than 28,000 subscribers (MacDonald, 1985).

The Canadian government’s interest in developing and financially supporting a commercial telecommunications network was directly linked to a growing economic interest in the North, particularly evident after the late 1950s. Telecommunications had become recognized as an important means to promote national northern development objectives, particularly mineral resource development. Theoretically, a crown corporation would be ideally suited for these purposes, being less encumbered by strict criteria of corporate economic viability. CNT made substantial efforts in laying a telecommunications infrastructure where economic considerations dictated, yet it spent little effort on telecommunications to meet uniquely Inuit needs. Long distance trunk facilities were constructed to provide increased interconnection capacity between growing economic centers in north and southern Canada. Sites remote away from the trunk line, however, were left with unreliable HF radio telephone. In the mid-1960s CNT began to introduce public radio telephone, so-called single sideband transmitters with fixed frequencies. This provided the communities with one radio telephone line each. Like today’s CB radio, at any time the line was open only in one direction and had to be switched to reverse the direction. There were no local exchanges and depending where the single radio telephone was located, access was limited (CNT, 1970:31). Thus, there was little effort to establish a regional commercial telecommunication system with local and long-distance telephone service (Mansell, 1979:46).

The rationale of the crown corporation was predominantly economic not social. As CNT put it in 1970:

But surely it would mean an unrealistic mixing of priorities to supply immediately or in the near future a relatively expensive telecommunications system to communities so small most of them apparently do not warrant electric power, a suitable airstrip or a semblance of local roads. However, as new industries and communities develop, these small settlements will eventually come within the sphere of economic telephone service (CNT, 1970: 44).

Likewise, early telecommunication developments in the Eastern Arctic were also determined by strategic and administrative interests, as well as geographical considerations. In contrast to the Western Arctic, there was less economic activity and thus less pressure on the federal government to get involved directly in extending services. As a result, rather than using a crown corporation the government transferred responsibility from DOT to Bell Canada. Construction was encouraged through federal subsidy programs.
Through such financial assistance Bell Canada and Quebec Telephone built the first tropospheric network in 1957, the so-called Pole-Vault system, to link Labrador and the Arctic islands with the south (Shoveller, 1962). In 1961 Bell pioneered the development of single side-band HF radio (i.e. radio telephone with one-directional traffic flow at any given time. Each radio transmitter was operating at a fixed frequency which allowed only one call at a time). Supported by substantial government aid Bell began to develop a radio-telephone system in the Eastern Arctic, including Northern Quebec and Labrador, using HF, VHF and tropo-scatter radio systems (Bell Canada, 1961). As in the Western Arctic, expansion was geared to meet government and industry interests; Inuit needs were generally neither recognized nor addressed. “Through the provision of radiotelephone and tropospheric scatter, we are linking once isolated missionaries, government officials and trading posts with the world’s telephone networks” (Bell, 1965).

The Inuit had little opportunity to express their concern to government and carrier representatives. This changed with the plans of the federal government to introduce a Canadian satellite system.

INUIT PRESENTATION OF TELECOMMUNICATION NEEDS

In 1970, the DOC organized a Northern Communications Conference in Yellowknife. It was the first forum for Inuit to express their needs and concerns. Communications projects testing applications of the new technologies, participation in the regulatory process through rate hearings, and Inuit public statements and reports about their communication facilities and needs provided additional opportunities for them to lobby for more adequate telecommunications services. In particular, they emphasized their unsatisfied needs of interactive, intra-regional and inter-regional communications for medical and other emergencies. Reliable communication services would further improve the quality of subsistence lifestyle and aid interpersonal communications. The provision of telephone and teletype services, as well as reliable and timely mail service was also considered essential to support socio-political development. The Inuit further pointed to the need of training in management of new communications technologies and the importance of participation in the decision-making and program-delivery process. Most importantly, Inuit emphasized their need for reliable, inexpensive, interactive services and facilities suited to the harsh conditions of the Arctic, on a seven-day, twenty-four-hour a day basis (DOC, 1970:5–9).

In response, in December 1974 Cabinet set forth a communication policy for the NWT and the Yukon, directing DOC to devise policies to improve northern telecommunications. Three years passed without a policy, however, and the Inuit stepped up pressure, announcing they would not participate in DOC’s
high-profile Anik-B projects unless all Arctic communities received reliable telephone services. Such threats were successful and in 1977 DOC finally introduced a subsidy program, the Northern Communication Access Program (NCAP), in response to the 1974 Cabinet decision (DOC, 1978:1).

Under NCAP, the government guaranteed the difference in costs to both CNT and Bell to a break-even situation over ten years. Over a five-year period, the NCAP was to provide about $9 million in federal contributions to cover capital costs of communications equipment to provide or upgrade facilities to every community in the NWT with over 100 permanent residents. Bell Canada and CNT were required to provide a similar amount in capital and operating funds for local exchange equipment and for operating the telephone circuits between communities (DOC, 1978:2). In 1978, the government signed the first contracts with CNT and Bell Canada. The program was finally completed in 1985, at an approximate cost of $8 million to the government.

Different institutional arrangements in the Eastern vs. Western Arctic have thus not resulted in principal differences in service provision. The NCAP was crucial in finally extending service to small Arctic communities in both regions. Yet it was inadequate in meeting Inuit needs: the NCAP did not address issues of quality and telephone rates. Rather, these were left to the federal regulator. Furthermore, no policies were put in place which both reflect the developmental character of telecommunications and encourage telecommunications usage among the Inuit.

TELEPHONE AVAILABILITY AND QUALITY

Data on telephone use in the Eastern Arctic is sparse and statistics that do exist were compiled primarily by Bell Canada and CNT. Other important sources of information are interventions and briefs at the rate hearings and an Inuit study on communications (Green and Simailak, 1976). Two independent studies also have addressed telephone use (Dicks, 1977; Valaskakis, 1975), albeit undertaken a decade ago at the time of transition from HF to satellite-supported telephone. They show the drastic increase in telephone use when local exchanges and increased long-distance circuits became available. They also point to a parallel increase in economic activity.

Through the Inuit Tapirisat of Canada (ITC), Inuit in the Eastern Arctic have been particularly active in the regulatory process to influence service development. These efforts have also influenced telecommunications in the Western Arctic. In the following section, emphasis will be placed on experiences in the Eastern Arctic.

Bell Canada's application for rate increases in 1976 was the first heard by the CRTC under its newly expanded mandate of regulating telecommunications.
To set a precedent for future rate applications the Commission was particularly thorough in investigating Bell, the largest common carrier in Canada. In trying to define just and reasonable rates, the Commission approached “this principle in the widest possible terms” and included the issues of level and quality of service, general access to the service, as well as the rates charged and their relation to the user’s ability to pay” (Telecom Decision, CRTC 77-7:8-9). The hearings, held in four northern communities as well as in Ottawa, were the most thorough ever to take place in the North. Government and telephone representatives emerged with a vivid picture of the role of telecommunications in northern Canada. For example, the day the commission arrived in Igloolik the telephones were out of order, as they had been for the previous two days, and ITC commented in a humorous note on the effect of the CRTC on northern telephone service: “One result of the Commission’s northern hearings that has already been achieved is that Bell Canada was present in the community and they fixed Igloolik’s telephone service at that time” (ITC, 1977:3).

Originally, northern data were not included in the company-wide quality-of-service reports. The CRTC required Bell to develop quality-of-service measures in consultation with interested groups. In 1982, the CRTC finally approved a set of indicators developed by the company (CRTC Telecom Decision, 82-13). These quality-of-service measures give only a partial quantitative indication, however, because the data are based on written or verbal complaints by customers to Bell, excluding dissatisfaction not officially expressed. Yet after analyzing the results of the quarterly service reports, a special survey conducted in 1978 (Garwood Industrials, 1980), and the testimony from northern people, there is no escaping the conclusion that the quality of service was rather bad until the mid-1980s. Table 1 (in Appendix) shows the major problem areas that emerged in the 1978 quality survey.

Nearly every community delegate who spoke at the 1976 hearings registered complaints about the local exchange. In particular, they said the telephone system often did not work, that they frequently got a dial tone or the wrong number, and they generally had to cope with poor quality. There were large percentages of telephones not working for periods of three weeks to a month, or working in an “on-again, off-again kind of thing” (ITC, 1977:2). There was not sufficient local exchange capacity to meet the needs, causing blockages and system failures.

“The phones finally went completely dead. About three weeks before Christmas I went to Rankin three times to call about them. We never knew if there was going to be a plane, either, because the phones were all dead. It gets very desperate without a way of calling out” (Joseph Kaludjak, Co-op manager, Whale Cove, in Green and Simailak, 1976: 60).
Long distance telephone service, particularly in those communities served by HF radio, was problem-ridden too. Echo, cut-offs, clipping of words, and getting the dial tone were among the problems most often cited. In 1973 satellite-supported telephone was inaugurated in the larger communities of Iqaluit, Resolute Bay, Igloolik and Pangnirtung. By 1976 twelve Eastern Arctic communities had satellite telephone services, eight had HF radio, and three were envisioned to get service in 1977 (Green and Simailak, 1976:58). With subsidies through the NCAP, HF radio was eventually replaced in all communities. Thus service became available around the clock and the quality improved significantly. However, there were not enough circuits (i.e. number of long distance calls possible at a time) installed and blockage problems continued.

Bell admitted that providing two lines per community was not enough and future satellite stations would be provided with three. According to this single criteria, seven of the eighteen Inuit settlements with satellite service were inadequately served and a further six had just the minimum. People trying to phone into satellite-served communities were unable to get through for days. People had to wait sometimes for two days to place a single long distance call. In the case of emergencies, “the only way was to run to the community radio and tell people to get off the phone” (ITC, 1977:4).

Right after the hearings, where company representatives were unable to make flight arrangements because the telephone circuits were busy, Bell Canada announced its policy of a minimum of three circuits. In 1979, Bell was able to double circuit availability and over the years has further increased line capacity. As a result, reaching communities is no longer a problem.

People also complained about the repair situation. To fix a minor problem would take a maximum of three months for settlements that are, in Bell Canada’s words, “way out.” Often problems reappeared right after the equipment was repaired. Currently, of the thirty-seven communities in the Eastern Arctic, only nine have a resident technician (Statistics do not indicate how many are Inuit). However, due to technological improvements, the local equipment requires much less maintenance (Myers, 1986:41). In 1986 Bell was still below the set standard of 80 percent with only 70.3 percent of reported troubles being cleared within twenty-four hours. Yet it had significantly improved from 59.8 percent in 1984 (Bell Canada, Quality of Service Reports, 1982–1986, Item #6).

The Inuit also encountered problems with billing, timely payments and disconnection. Additionally, there was a lack of communication between the carrier and the native population because of language problems. For years, Bell did not consider that many Inuit were unilingual and mailed bills and information material only in English. Billing accuracy remained below the set standard of 95 percent until 1985 (Bell, Quality Service Reports, Item #13). This was often due
to the delay in getting the bills and transferring the payments. It made it difficult for people to pay in time or to clarify the charges. Previously paid amounts reappeared on the current bill which led to confusion. People felt insulted and frustrated. They also complained about being threatened with disconnection even before receiving the bill. Some Inuit, who could neither speak nor write in English, just paid for the calls because they didn’t know what else to do. Because there was a lack of Inuktituk-speaking operators, unilingual Inuit could not communicate with the Ottawa operators, leading to “confusion and mistakes, and a waste of time and loss of money in a lot of calls” (ITC, 1977:7). In 1980, the CRTC still criticized the issues of timely repair and adequate information (Telecom-Decision CRTC 80–14).

Since 1981, however, the major issue has shifted from establishing and maintaining reliable telephone service and providing adequate information to the rate structure of northern telephone service.

THE BELL CANADA RATE STRUCTURE FOR THE REMOTE NORTH

Historically long distance has been priced according to the distance separating the communities. Since the longer the distance, the more facilities used, it made some sense to base price on distance. But if this pricing scheme was appropriate for land-line facilities it is certainly obsolete for satellites. A call from Igloolik, for example, travels 35,680 kilometers into the sky, where it is bounced off a satellite to travel another 35,680 kilometers to reach a neighbouring community, whether fifty or two hundred kilometers away. Yet the customer is still charged different rates depending on the distance separating the communities. A call to the nearest regional center to inquire about a social service (in southern communities mostly a local call) is priced very high.

Inuit have emphasized their reliance on telecommunications for social and economic development which is reflected in the heavy use of the telephone. In 1983, of the 2,011,898 calls in the remote North, including remote northern Quebec and Ontario, 897,397 (44.6%) were intra-regional calls, 333,360 (16.6%) originated outside and 781,141 (38.8%) terminated outside the north (Bell, 1984, Follow-Up Item 81–15:01, 27 July 1984). This also indicates the heavy use and reliance of both north-north and north-south communications.

The average annual revenue from long distance service per main station in the NWT in 1975 was $374 and in 1976 $400, compared to $139 and $159, respectively, for the total Bell territory. The average annual revenue from long distance per main station was thus 2.6 times greater in the NWT than in the total Bell territory (ITC, 1977:6). Over the years the discrepancy has increased to 3.1
In 1984, despite a slower increase of northern rates (Bell, 1984, Follow-Up Item 81–15:01, 27 July 1984).

In its Telecom Decision CRTC 77-7 the Commission denied Bell any northern rate increases because of the low quality of long distance service. It required separate rates to reflect the inadequate service, the so-called Message Toll Schedule 3 (MTS 3). These lower rates per distance have been maintained in subsequent rate decisions and still apply today. The Inuit do not consider this a satisfactory relief (CRTC, Telecom Decision 85–16).

On the other hand, Bell has continuously opposed any special rates for the North and wants to apply the higher southern rate structure. It does not consider northern circumstances to be unique and the costs of providing service in those areas would far exceed the revenue produced. For 1983 Bell estimated revenues from remote northern exchanges at a total of $10.8 million. The cost of providing telephone services was estimated at $27.5 million (Bell, 1984 Follow-Up Item 81–15:01, 27 July 1984).

The CRTC did not accept this argument and stressed “the financial burden placed on subscribers in remote northern areas due to the relatively low value they receive for local rates and their dependence on long-distance service.” It referred to the special circumstances including the isolation of remote communities from each other, the absence of reliable alternatives to telecommunications and the small size of most of these communities (Telecom Decision CRTC 81–15: 9). Instead, the Commission required Bell Canada to develop proposals for special flat rates that applied to long distance calling in the remote northern areas. ITC et al. supported this idea. The objective should be to bring the northerners’ monthly long-distance bills more closely in line with the average Bell territory. It suggested introducing flat rate long-distance calling plans on a community rather than an individual basis. The North could be divided into three zones (Remote Ontario, Northern Quebec, NWT) with possible sub-regions. Examples in the United States were quoted where the companies offered unlimited calling to a number of exchanges for a flat monthly fee within a seventy-mile radius (Hudson, for ITC et al., 1981:2;19).

In its response, filed in March 1982, Bell Canada discussed four individual and community-wide frequent calling plans, and concluded that none were economically viable. Only discounts after six P.M. were considered economically feasible, yet they would further reduce northern revenues. Bell recommended to use the southern rates (Bell, 1982:5.1). No attention was paid to the special northern conditions.

Bell argued that flat rates would distort actual calling patterns. There would be a few accounts with high long-distance charges that would boost the typical intra-north charges of the majority of accounts, particularly business accounts.
An average of 67 percent, or $25.40 of the mean residence bill was associated with calling outside the North. For business accounts, the average was 75 percent or $59.96 respectively. Consequently, establishing toll free extended area calling would increase expenses for all those customers with low toll charges and benefit only a few. The average telephone bills of northern subscribers would not be substantially reduced.

In addition, Bell feared that relaxed criteria for extended area plans would set dangerous precedents to the future detriment of the Company and all its customers. People in other parts of Bell’s territory could press for similar treatment. The Company was not convinced that the “social circumstances” of the customers in the remote north were so special that they justified unique rate treatment. There would be many customers outside the northern territory who would consider their isolation just as extreme, and their circumstances just as special.

In an environment where rates for various telephone services are being driven more towards cost, the Company does not believe that it should be expected to perform a social wealth redistribution role to benefit a group of subscribers in one section of its territory, at the expense of another. Such a role, if necessary, would appear more appropriately borne by the citizens at large (Bell, 1982:35).

ITC responded with three alternative flat-rate inter-exchange calling plans. The rates would be flat within each remote zone, available around the clock on a two-way basis to all subscribers, and thus easy to understand and simple to implement (Hudson, for ITC et.al. 1983:5–9). In its response, Bell claimed that the potential revenue reductions would range from $1.5 million to $3.0 million. In addition, the increased demand in phone calls arising for the first year was estimated to result in higher annual equivalent costs that would range from approximately $2.5 million to $25.0 million (Bell, 1984, Follow-Up Item 81-1 5:01, page 1).

In its final decision, the Commission followed Bell Canada’s argument and rejected ITC’s alternatives. It listed three reasons as having guided its decision. First, there would be a significant negative net revenue impact on the company. Second, it felt there was a low interdependence among exchanges within each region which would not justify the plan. And third, some subscribers would experience an overall increase in monthly bills which would not be acceptable (CRTC Telecom Decision 85-16).

On the other hand, the CRTC ruled that the individual frequent caller plan, available in Ontario and Quebec, should be extended to the NWT between eight a.m. and eight p.m. to reflect the need of telecommunications for socio-economic development (CRTC, Telecom Decision 85–16: 5–6). That is customer dialing calls to a particular exchange within the Bell area will pay a flat
monthly charge of $17.45 for the initial sixty minutes of accumulated calls and $3.45 for each additional fifteen minutes (General Tariff, Item 3170; Telecom Order 86–77).

In March 1986 ITC petitioned—unsuccessfully—to revoke the CRTC Decision 85–16. It argued that the CRTC applied the wrong policy in determining the appropriate long distance rate for telephone users in the remote north; that it allowed unjust discrimination by Bell, and thus rates which were not reasonable or just. ITC claimed further that since none of the members of the CRTC who rendered the 1985 decision were at the hearings in 1976, their decision appeared to be based on lack of knowledge of relevant facts and policy (ITC et al., 1986:2).

In its decision, the CRTC thus took more notice of the revenue impact on Bell Canada than on the socio-economic situation of remote northern telephone users. Bell Canada’s argument has been that service in the North is more costly to provide. Yet the impact on Bell is relatively small when compared to the company’s total revenues. Using Bell’s estimated loss in revenues of $3 million for a test year, and Bell’s operating revenues of $6,255 million for 1986 (CRTC, 1986:78), the potential revenue loss translates into a maximum of 0.004 percent of Bell Canada’s revenues. Taking into account the estimated additional costs involved, ITC’s proposal would reduce Bell’s profits by about $25 million, or by 1.4 percent.

CONCLUSIONS AND IMPLICATIONS FOR TELECOMMUNICATIONS POLICIES

The combination of isolation and small population makes northerners highly dependent upon telephone service. For interactive communication, they must use the long distance network as much as southern customers use their local exchange service. Throughout the 1970s, native people sought to get reliable telecommunications into their communities. Generally these efforts have been successful in that today all the Arctic communities in the NWT have satellite or microwave telephone services and, with a few exceptions, such as the Central Arctic (Bargen, 1985), an acceptable quality level.

The Inuit have not been successful in getting services at affordable prices. The average Northerner spends more than three times as much for toll service as does the average southern customer. The gap in average monthly toll charges has increased rather than decreased. At the same time, the relative economic situation of native people has not improved. As a result, telephone penetration is lower than in the southern regions because many people cannot afford the service. Yet they remain more dependent upon the technology to obtain essential services and use it for business purposes.
The important role of telecommunications has been recognized for some time, reflected in government subsidies such as the NCAP of 1979 and in CRTC statements requiring the common carriers to consider the particular northern situation. Yet recognizing a point is one thing, translating it into effective policies is another. The CRTC has shown an overriding concern for the profit situation of Bell Canada, although the suggested flat rate plans would only have a very small impact on the carrier’s overall income.

By choosing public ownership for telecommunication in the Western Arctic, the federal government broadened its responsibility and included political and cultural objectives in its mandate of public ownership. Yet the different institutional arrangements of a crown and a private corporation have had less implications on service, cost allocation and Inuit participation than the general economic development of the area and the distance of the settlements to these regional centers. NorthwesTel operates likewise according to guidelines that the private investor-owned carrier Bell Canada follows.

For the established common carriers, profitability, not social services, is the first priority, which is understandable. What values enter the cost-benefit analysis and what is treated as non-dollar, “externality,” is not determined in the North but in the southern centers of the corporations. The result is a widening gap rather than more equal access to increasingly sophisticated communication facilities.

Because telecommunication services are very expensive for remote settlements, there is a lack of identifiable demand—which does not mean there is no need. With the Inuit moving towards greater self-government, they will require new and affordable services. But this need will not translate into a demand which can be met economically: people are too few and too dispersed to justify the installation.

In the absence of such a demand, two strategies can be envisaged. The first, usually followed by the common carriers, is to simply wait until the need translates into an effective demand. For example, the discovery of oil and gas in the Beaufort Sea made the provision of the most sophisticated information transfer feasible, i.e. the oil corporations were willing to pay the high price for service delivery. Viewed in this perspective, telecommunication services are merely a consequence of development.

The other strategy is to view telecommunications as one of the creative instruments of economic and socio-cultural development and to provide such services in anticipation of a yet insufficient economic demand. The assumption is that supply will create its own demand. Providing adequate facilities at affordable prices will contribute to the build-up of an effective demand, reflecting
the developmental character of telecommunications (Pierce and Jequier, 1983:74).

To more effectively realize the potentials of telecommunication, investments in technologies in this sector should be treated as part of an incentive program for socio-economic development and coordinated with other programs, such as those offered for regional socio-economic development. If telecommunications are viewed as an instrument of development, then the conventional financial criteria of return on investment or ratio between investment costs and subscription revenues are insufficient. These are important yardsticks, yet they need to be complemented by decisions regarding the investment in telecommunications and other public services, such as education, health services or transportation infrastructure. The northern experiences indicate that national planners and regulatory agencies have not considered affordable, basic telephone and other telecommunication services as crucially important investments.
Appendix

Table 1

Bell Canada Quality of Service Problems: 1978 Survey

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Billing</td>
<td>66%</td>
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<tr>
<td>Long Distance Network Performance</td>
<td>63%</td>
</tr>
<tr>
<td>Local Network Performance</td>
<td>55%</td>
</tr>
<tr>
<td>Operator Services</td>
<td>35%</td>
</tr>
<tr>
<td>Directory</td>
<td>25%</td>
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<tr>
<td>Installation</td>
<td>32%</td>
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<tr>
<td>Repair</td>
<td>24%</td>
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<tr>
<td>Business Office</td>
<td>22%</td>
</tr>
</tbody>
</table>

Source: Garwood Industrials, 1980:2. The survey was based on 245 interviews.
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