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Telecommunications in Canada

1999

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. available for any reference period.

.. not available for a specific reference period.

... not applicable

p preliminary

r revised

x suppressed to meet the confidentiality requirements of the *Statistics Act*

E use with caution

F too unreliable to be published

This publication was prepared under the direction of:

- **F.D. Gault**, Director
- **H. McCarrell**, Chief, Telecommunication Section

Survey Operations

M. Lynch, R, Joseph

Publication Support

L. Sabourin

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1999 Highlights

- Operating revenues for the telecommunications industries were $29.0 billion and operating expenses totalled $25.1 billion.
- Operating profit was $3.9 billion, a $101.2 million increase from 1998.
- Operating profits were 13.5% of total operating revenue, essentially unchanged from the previous year (13.4%).
- 93.2 thousand persons were employed in the telecommunications industries in 1999 (80.7 thousand full-time workers and 12.5 thousand part-time workers).
- There were 2.2 thousand fewer persons employed in 1999 than in 1998 (a decline of 2,560 full-time employees and an increase of 352 part-time employees).
- Two-way trade in services (exports and imports) by telecommunications service providers amounted to $2.9 billion, a 2.2% decline from 1998 ($3.0 billion).
- The net balance of trade improved rendering a positive trade balance of $1.5 million compared to the negative $51.8 million balance in 1998.
- Industry assets increased by $3.9 billion from the previous reporting period to $50.9 billion.
- Capital expenditures continued their strong showing. Nearly $6.0 billion was spent in 1999, marginally lower than the record $6.4 billion reported in 1998.
- There were 19.8 million voice-grade access lines in 1998, a 2.7% increase from what was reported in 1998 (19.3 million).
- 99.6 % of all fixed access was digital.
- Mobile telephony subscriptions increased by 1.6 million or 29.0% to 6.9 million.
- This 29.0% increase reflects a higher growth than the previous year (25.5%). This outcome can be attributed to digital services, up 84.3%, compared to analogue services which increased by 9.3%.
- 37.5% of mobile telephony subscribers used digital services in 1999 compared to 26.3 % in 1998 and 11.0% in 1997.
- Long distance traffic for wireline service providers reached 42.8 billion minutes, 19.2% higher than 1998 usage (35.9 billion minutes).
- Nearly all the increase in long distance wireline carriage was domestic based. Domestic calling increased by 26.4% whereas calls with a foreign origination or destination increased by only 1.9%.

Introduction

The telecommunications industry value - added stands at 2.09 % of gross domestic product, over 15% higher than its 1998 contribution of 1.81%. With revenues in the tens of billions of dollars, telecommunications have come a long way since Alexander Graham Bell first transmitted human speech through electrically energized equipment in March, 1876, thus introducing the telephone. In August of the same year he made a one-way call from Brantford to Paris, Ontario, which marked the first long distance test of his new invention.

Soon after, telephone exchanges sprang up in many communities as companies competed vigorously for new customers. By 1886, there were 13,000 telephones in operation in Canada. As the industry grew, it became necessary to set up federal and provincial agencies to regulate it. By 1941, there were 3,200 independent telephone systems in Canada operating some one and a half million telephones. Since then the number of telephones and corresponding access lines have increased steadily while the number of telephone systems declined sharply, as many small systems were absorbed by larger and more efficient ones.

On November 9, 1972, Anik 1, Canada's first domestic satellite was successfully launched. The Trans-Canada Telephone System (which became Stentor) and Bell Canada reserved channels on it to transmit long distance telephone calls to and from remote areas of northern Canada scarcely thought of 100 years ago. Satellite channels, microwave relay systems and other modern telecommunications media have now replaced a large part of the wire that formerly carried Canada's long distance telephone traffic.

A major advance enhancing the telecommunications options for Canadians came with the licensing of cellular telephone operators in 1985. Regional duopolies were created with the introduction of a national carrier (Rogers Cantel) and the regional mobility companies servicing the same territories as their local wireline services monopoly counterparts (Stentor member telephone companies). Mobility services and competition were extended with the introduction of Personal Communications Services (PCS), and two new national competitors, Microcell (in 1996) and Clearnet (in 1997) .

Wireline and satellite services industries have also been subject to increased competition over time. Private line and data services were liberalized starting in 1979 and the provision of customer premises equipment was opened-up in the early 1980's. The resale of long distance services was introduced in 1987 and facilities-based competition followed in 1992. Competition was given a boost in 1994 when the Canadian Radio-television and Telecommunications Commission (CRTC) mandated 'equal access,' enabling customers to connect with a long distance carrier of their choice without having to dial additional (access) numbers. Teleglobe Canada, Canada's overseas monopoly carrier was privatised in 1987 and its monopoly privileges ended in 1998. The industry underwent a major organizational change with the cessation of Stentor, the national alliance of incumbent carriers in 1998. This opens up the prospect of incumbents competing in each other's territory. Lastly, Telesat Canada, the monopoly satellite carrier was privatised in 1992 and its monopoly privileges were slated to end in 2000.

A number of regulatory decisions have yet to be realized in the market place, such as local competition and the deregulation of the pay telephone market. These decisions, in tandem with technological invention and innovation and the convergence of cable, internet and telecommunications services will significantly impact our lives. So many spheres of human activity: communication, learning, governance, business, art, culture, entertainment, etc. will undergo some significant changes directly related to the development of these new information networks.

Analytical Overview

The tables presented in the following pages describe the financial, operating and network activity in the telecommunications industry in Canada and where applicable, provincially, for 1999. It should be noted that carrier revenues and expenses were reported on a gross basis starting in 1998 rather than a net basis, as in previous years. Thus the corresponding revenue and expense items as well as total operating revenues and expenses for 1998 and previous years are not comparable. All other revenue and expense variables are not affected by this change and therefore can be compared.

National Indicators

In 1999, **operating revenues** of the telecommunications industry reached $29 billion. Wired telecommunications carriers dominate the provision of telecommunications services. They accounted for 78.7% of total industry revenue, down about two percentage points from 1998, while wireless carriers, resellers, and satellite and other service providers accounted for 16.2% (15.4%), 3.3% (2.2%) and 1.8% (1.5%) of industry revenues, respectively (1998 figures are in brackets).

Operating revenues are classified into Telecommunications and Other (non-telecommunications) activity categories. **Telecommunications revenues**, those related to the carriage or resale of telecommunication services, made up 88.8% of all operating revenues. The major services provided were local and long distance telephony (33.0% and 23.4% of operating revenue); private line services (5.2%); data and high speed services (4.9%); sale of goods (4.3%) and calling features, such as call management, telemessaging, and pay-per-use services, etc. (3.8%).

Voice services revenues remained virtually unchanged from a year ago, however, owing to growth in other services, their share of total operating revenue excluding carrier services dropped marginally from last year.

Other operating activities accounted for the remaining 11.2% of operating revenues. These activities (e.g., directory publishing, sale or rental of telecommunications goods, repair and maintenance, etc.) are commonly undertaken by telecommunications companies but may also be undertaken by companies that provide neither the carriage nor resale of telecommunications services.[1]

Operating expenses totalled $25.1 billion. Network expenses accounted for just over 54% of all expenses, commercial and administration took just over 35%, occupancy 3.0% and non-telecom expenses 7.3% of the total. The single largest expense item is depreciation and amortization. Together, the allocation of sunk costs amounted to 22.8% of total expenses for the industry ($5.7 billion). The next largest categories were interconnection/settlement (11.4%), selling, marketing and advertising (11.2%), network facilities access (e.g., purchased LD, or circuit rentals) (7.6%) and corporate administration and general office expense (6.9%). It is interesting to note that service providers spent more in purchasing access to networks than facilities-based carriers spent in operating their networks. As would be expected, purchased network access is most important for resellers, accounting for 59.9% of their total operating expenses.

Operating income or profit, the difference between operating revenues and operating expenses equalled $3.9 billion, or 13.5% of total operating revenue. This is a small increase from the $3.8 billion reported for 1998. Operating income is used to cover interest payments, any extraordinary expenses, income taxes and finally for returns to shareholders (dividends or retained earnings).

Operating incomes were not uniform across the telecommunications industries. The wireline industry posted an operating income to revenue ratio of 18.4% (17.4%), and the wireless and reselling industries posted losses of 2% and 23.4% respectively. This represented a modest improvement over the previous year for wireless carriers (4% loss in 1998), but a significant deterioration for the resellers (losing only 7.1% in 1998). Satellite and other industries showed the greatest improvement over last year, increasing 4.5 percentage points from 5.5% to 10%.

The **non-operating revenues and expenses** loss position improved greatly over last year. Heavy restructuring costs such as down-sizing and one time write-offs to prepare the wireline industry for an increasingly de-regulated market place, including the industry's transition from regulatory to GAAP (generally accepted accounting principles) accounting rules were applied last year impacting financial statements negatively in 1997.

The **net income** position improved only for the wireline industry (+ $1.3 billion), remained largely unchanged for the wireless and satellite/other industries and deteriorated by over $100 million for resellers. Overall, combined industry net income increased to $828 million from a loss of $328 milion in 1998.

The continuing losses for wireless carriers pushed their **retained earnings** further into the red to nearly $3 billion. Retained earnings for resellers and satellite/other companies were also negative and declined by nearly $800 million although positive for wireline carriers. Despite the stronger profit picture for the industry in general, retained earnings were in negative position of $2.2 billion in 1999 compared to only -$396 million in 1998.

Overall, 64.4% of telecommunications service providers in Canada reported positive net income and 72.1% were **profitable reporting units** in terms of operating income. This is an improvement over 1998 where 61.3% and 65% of service providers reported net income and

[1] *If these activities constituted a majority of a company's operating revenues, the company would be classified as a non-telecommunications service provider and its results would be excluded from the survey tabulations.*

operating income profitability respectively. Conventional telephone service providers were the most likely to have positive net incomes and operating margins (81.5% (80.9% last year) and 84.6% (89.7%) of all reporting units). All other industries showed a greater percentage of companies with postive operating results.

Telecommunications service providers purchase from and sell services to non-residents. **International trade** in telecommunications services refers chiefly to interconnection, the termination of calls between Canadian and foreign telecommunications networks. Trade in non-telecommunications services includes commercial, financial, professional, technical, administrative and management services, royalties, commissions, and interest and dividends. These two-way transactions amounted to $2.9 billion in 1999, rendering a positive services trade balance of $1.5 million for the Canadian telecommunications industry. This result is better than $51.8 million loss reported last year, but due to the relatively small net values vis-à-vis the respective two-way gross values reported, can be seen to be in balance over the past three years.

Total **employment** continued its gradual long-term contraction. In 1999, 93.2 thousand persons were employed by this sector compared to 95.5 thousand persons 1998 and 99.9 thousand persons in 1997. Full and part-time employment levels were 80.7 and 12.5 thousand, respectively. This represents a modest increase in part-time workers of 352, and a decline of 2,560 full-time workers over 1998 (88.8 thousand).

Labour costs during 1999 accounted for approximately the same share of the industry's operating revenue as in 1998. Despite the decline in persons employed, labour costs increased $487 million to $6.0 billion. Employees of the wireline industry had the highest earnings (full-time equivalents (FTE) calculated based on average full-time employee salaries), followed by the satellite, wireless industries and finally resellers.

Despite posting the highest salaries, the wireline industry does not report the highest revenues per employee (full-time equivalent). This distinction was earned by the wireless carriers ($381.9 thousand /FTE). This high output did not translate into a positive operating margin however (-2.0%). Resellers reported the lowest contribution per employee ($288.8 thousand/ FTE employee), but also had salaries less than 60% of the wireless companies. The other groups, wireline carriers and satellite/other providers, reported revenues per employee of $323 thousand/FTE and $370.7 thousand/FTE respectively. They also reported the highest operating margins. For all of NAICS industry 5133, revenue per employee increased 5.2% over the previous year, standing at $330.7 thousand.

Assets for the industry were recorded at $50.9 billion, an 8.2% increase from 1998. Just under 62% of assets are fixed, with 82.7% of this amount being for network infrastructure. Current assets were 14.3% of total assets, and the balance of total assets, 24.0%, was made up of financial investments, deferrals and other non-current and fixed assets. Wireline and wireless industry asset shares of total sector assets roughly parallel their share of sector revenues. Wired carriers accounted for 81.2% of the sector's total assets and 78.7% of revenue, while the wireless industry accounted for 14.1% of assets and 16.2% of sector revenues. The satellite and other industries' asset share was nearly twice their revenue share (3.0% to 1.8%), reflecting its very capital intensive nature, and resellers, not surprisingly, accounted for only 1.7% of total assets, despite accounting for 3.3% of industry revenue.

Outstanding accounts (receivables) at this year end increased to $5.1 billion from $4.1 billion last year, accounting for 73.0% and 67.6% of wireline and wireless industry current assets. The wireless sector's level of unrealized revenues remained unchanged over the year whereas wireline carriers had about one billion dollars more in uncollected revenues at year end than last year. This situation can be seen in the industry's working capital which is solidly negative: current liabilities exceed current assets by $2.9 billion.

The largest network infrastructure categories (based on historical values) for wireline carriers, the only industry for which detail can be published, in order, are, cables and lines (30.1%), switching equipment (26.5%), transmission equipment (20.7%) and transmission structures (7.8%). For the most part, the asset structure of this industry remains the same as last year. The capital structure, or the mix of instruments used to finance the assets, has become more debt intensive however. The debt:equity ratio from 1998 to 1999 went from 1.00 to 1.39 for the wireline carriers, and from 1.61 to 1.97 for the whole industry over the same period. Despite the three billion plus dollar increase in assets, equity has only advanced by 172 million dollars.

High **capital expenditures** have been characteristic of the telecommunications industry over the past few years. 1999 expenditures were 11.8% above the record amount reported in 1997, reaching $6.4 billion. Capital spending continued to be strong in 1999, coming in at $6.0 billion. Nearly three-quarters of expenditures were for machinery and equipment and just over one-quarter was for construction; last year there was a 2:1 split (2/3 vs. 1/3). Resellers, not known for capital spending, bucked the general industry spending decline by increasing their expenditures to $140.2 million from $26.8 million.

Not all spending categories were lower this year. Switching equipment (hardware and software) increased by $448 million and $136.4 million dollars respectively and optical fibre spending was up 71.4% to $336 million, The largest declines were reported for terminal equipment (-$340.9 million) and transmission structures (-$306.7 million).

The telecommunications **network infrastructure** is highly developed in Canada. Public-switched telephone network (PSTN) **access** reached 19.8 million **lines** (all references to PSTN lines are in VGE, voice-grade equivalents) in 1999, an increase of about 2.7% from the previous year. This compares to the 3.4% growth registered in 1998 and the 2.1% increase in 1997. Residential lines accounted for 64.3% of the total, while business lines represented 35.7% of PSTN lines. Access lines per 100 population was 64.7, up from 63.6 last year.

Mobile cellular telephony has expanded the provision of network access. At year-end there were 6.9 million **cellular subscribers** - a 29.0% increase over the previous year. Mobile telephone penetration (teledensity) reached 22.6 per 100 Canadians in 1999 (17.7 in 1998 and 14.2 in 1997).

There were 1.55 million new wireless access paths to the PSTN this year and 513 thousand wireline additions. Combined wireline and wireless access to the PSTN grew 8.3% over last year and now stands at 87.3 VGE access paths per 100 Canadians.

Digital transmission of communications on the PSTN is an important facilitator of new telecommunications services. 99.6% of PSTN access lines are digital compared to 37.5% of mobile access to the PSTN. Digital wireless access in 1998 was 26.4% and in 1997 was 11.0%. Together, 83.1% of wired and wireless access to the PSTN is digital.

The **Paging services** also showed continued strong growth despite the strong growth in cellular telecommunications, considered by some to be a substitute for paging. There were 1.8 million pagers in service in 1999, up 13.1% from the 1998 level.

Long distance traffic for wireline service providers reached 42.8 billion minutes of which 74.8% originated and terminated in Canada. A total of 25.2% had one leg to or from a foreign destination.

Long distance carriage by resellers increased by 247 million minutes, but their share of the domestic market declined to 7.4% from 9.1%. The reseller industry's share of foreign calling increased 1.4 percentage points but remained a fraction of facilities based carriers, amounting to only 4.3% of the total. **Toll-free calling** is an important part of the long distance market in Canada. Just over 15% of all domestic long distance calling was toll-free to the caller.

Provincial Indicators

In 1999, there were 222 companies in Canada whose main activity was the provision of telecommunications services. Many of these companies operate (have employees), in more than one province. Using this criteria, there were 329 telecommunications **establishments** in Canada[2].

Provincial activity tends to parallel a province's share of national population. Ontario, which had just under 38% of national population, accounted for 40.1% of national telecommunications revenue. Quebec was next with 24.7% of revenue and 24.1% of population, British Columbia accounted for 13.3% of revenue and 13.2% of population. All of the other provinces reported a smaller share of national revenue than their share of population.

When considering operating profits this population rule of thumb does not hold. Ontario and Quebec showed lower operating profit margins and consequently a smaller share of the national pie than the Western or Atlantic provinces. Despite having 40.1% of national revenue, Ontario establishments provide only 31.8% of national industry operating profits. Newfoundland establishments had the highest level of operating profits relative to their operating revenues, followed by Nova Scotia and New Brunswick establishments. This Ontario and Quebec anomaly may be because companies find it easier to allocate revenues to establishments than costs. The preponderance of establishments with head offices in central Canada could therefore lead to a disproportionate number of costs being allocated to their head offices, and skewing the profits results.

Quebec accounted for only 17.9% of national **mobile telephony subscriptions**, but far more than its relative weight of **paging subscribers** (39.7%). Alberta showed the greatest relative penetration of mobile subscribers - 40.4% above the national average, and Ontario was next, 15.7% above the national average .

The provinces (where data can be released) except Nova Scotia (11.6%) and Alberta (16.9%) had **capital expenditures** close to the national ratio (20.6%). National machinery and equipment (M&E) expenditures were nearly three times that of construction (C)

[2] *Some of these companies may provide services in provinces where they do not have employees, but the provision of services alone does not constitute an establishment, therefore such situations have not been included in the establishment count.*

expenditures (M&E:C ratio of 2.8), and most provinces were in line with this except B.C. and Alberta which showed a greater propensity than other provinces for construction capital expenditures (M&E:C ratio of 1.94 and 1.49 respectively).

Household Telecommunications Indicators

98.2% of Canadian homes have at least one fixed line telephone – unchanged from 1998. The North reported the lowest household penetration (92.3 households per 100 reported having a telephone), followed by Newfoundland (96.9), whereas Alberta showed the highest penetration (99.1).

Mobile telephony continued to show marked growth. In 1997, household penetration was 18.6%. One year later, this has increased to 26.1%, and in 1999, it had reached 31.9%. Alberta lead the nation in household mobile penetration as well with 44.8% of households having a mobile phone. This rate is 40.4% above the national average. Ontario and British Columbia were next with penetration of 36.9% and 36.1% respectively. Manitoba, the only western province, and all provinces east of Ontario, had mobile telephone household penetrations below the national average. The eastern provinces however, posted growth rates that exceeded the national average. Newfoundland reported the greatest increase (48.6%) followed by P.E.I. (35.6%). Saskatchewan posted the lowest growth but stands above the national average by 2.3 percentage points. The trend in mobile telephone adoption remains strong - Canadians are embracing mobile technology as never before.

Household spending on communication activities[3] increased 16% from 1997 to 1999, reaching $973 per household, or 1.8% of household spending. The highest spending was reported in the Northwest Territories, $1,449 per household, but as a share of household spending did not differ from the national average. Nova Scotia registered the largest increase in communications spending from 1997 to 1999, 22.5%, placing it just over the national average at $980 per household.

[3] *Expenditures for household communications fall within the category "Household operation". These expenditures include purchase of telephones and equipment, telephone services, installation and repair. Also included are cellular services, internet services and postal and other communications services.*

STATISTICAL TABLES

TABLE 1. Balance Sheet, by NAICS Telecommunications Industries, 1999

NAICS Industry	51331	51332	51333	51334/9	5133	+ +
			(thousands of dollars)			
ASSETS						
Current Assets:						
Cash, deposits and temporary cash investments	1,016,554	11,137	x	x	1,067,340	
Accounts receivable	4,174,594	691,850	x	x	5,058,951	
Inventory (closing)	247,515	85,270	-	39,521	372,306	
Other current assets n.e.c.	276,072	235,945	x	x	757,839	
Total - Current Assets	**5,714,735**	**1,024,202**	**327,200**	**190,299**	**7,256,436**	▪
Fixed Assets:						
Land	184,078	18,378	x	x	210,453	▪
Buildings (historical cost)	3,757,616	372,769	x	x	4,189,794	
Accumulated depreciation	1,899,141	103,365	x	x	2,027,371	
Net book value	1,858,475	269,404	x	x	2,162,423	▪
Network infrastructure (historical cost)						
Construction:						
Transmission structures	3,875,163	1,858,635	-	231,640	5,965,438	
Cables/lines	15,008,363	-	-	-	15,008,363	
Other telecom construction	1,153,616	-	-	-	1,153,616	
Total - Construction	**20,037,142**	**1,858,635**	**-**	**231,640**	**22,127,417**	
Machinery and equipment:						
Transmission equipment	10,322,542	x	-	x	12,710,751	
Switching equipment	13,195,774	x	-	x	15,179,569	
Terminal equipment	3,284,388	x	-	x	x	
Satellites	-	-	-	x	x	
Other telecom machinery & equipment n.e.c.	2,951,874	x	x	x	5,466,583	
Total - Machinery and equipment:	**29,754,578**	**6,097,797**	**x**	**x**	**37,414,258**	
Total - Network infrastructure (hist. cost)	**49,791,720**	**7,956,432**	**x**	**x**	**59,541,675**	
Accumulated depreciation	29,508,190	3,276,089	x	x	33,481,847	
Net book value	20,283,530	4,680,343	x	x	26,059,828	▪
Other fixed assets (historical cost):						
Computers, software & related equipment	2,416,767	1,028,832	-	71,687	3,517,286	
Furniture and office equipment	635,056	160,884	-	20,595	816,535	
Motor vehicles & other transport equipment	594,296	484	-	1,076	595,856	
Residual	765,480	325,870	117,038	60,441	1,268,829	
Total - Other fixed assets	**4,411,599**	**1,516,070**	**117,038**	**153,799**	**6,198,506**	
Accumulated depreciation	2,232,099	735,362	35,875	108,044	3,111,380	
Net book value	2,179,500	780,708	x	45,755	3,087,126	▪
Total - Fixed Assets (net book value)	24,505,583	5,748,833	271,922	993,492	31,519,830	← ▪
Financial investments	7,100,378	176,666	34,611	265,321	7,576,976	▪
Deferred charges	2,225,386	113,438	13,334	35,251	2,387,409	▪
Other assets n.e.c.	1,743,626	121,500	217,951	32,282	2,115,359	▪
Total - ASSETS	**41,289,708**	**7,184,639**	**865,018**	**1,516,645**	**50,856,010**	←

▪ values to be summed
← total of the summation
– nil or zero

TABLE 1. Balance Sheet, continued...

NAICS Industry	51331	51332	51333	51334/9	5133	
			(thousands of dollars)			+ +
LIABILITIES						
Current liabilities:						
Trade accounts payable	2,132,214	608,288	-	62,047	2,802,549	
Other accounts payable	3,083,483	386,230	x	x	3,628,971	
Short-term debt	2,238,124	x	x	x	2,760,614	
Short term deferrals	131,757	-	1,149	-	132,906	
Other current liabilities	135,034	x	x	x	829,982	
Total - Current liabilities	**7,720,612**	**1,622,893**	**576,706**	**234,811**	**10,155,022**	▪
Long-term Liabilities:						
Long-term debt:						
Amount owing to parent, subsidiaries and affiliates	5,959,659	x	-	x	9,628,103	
Bonds and debentures	9,954,688	x	-	x	12,465,287	
Other long-term debt	1,827,934	x	x	x	2,632,526	
Total - Long-term debt	**17,742,281**	**6,370,573**	**x**	**x**	**24,725,916**	
Deferrals and reserve accounts	1,297,112	x	x	x	1,728,192	
Other Long-term liabilities n.e.c.	192,731	x	x	x	325,132	
Total - Long-term liabilities	**19,232,124**	**6,563,894**	**237,108**	**746,114**	**26,779,240**	▪
Total - LIABILITIES	26,952,736	8,186,787	813,814	980,925	36,934,262	← ▪
EQUITY						
Share capital	10,917,457	1,977,186	200,850	664,930	13,760,423	
Retained earnings	1,120,443	(2,999,052)	(190,192)	(129,210)	(2,198,011)	
Other	2,299,072	19,718	40,546	-	2,359,336	
Total - EQUITY	**14,336,972**	**(1,002,148)**	**51,204**	**535,720**	**13,921,748**	▪
Total - LIABILITIES and EQUITY	**41,289,708**	**7,184,639**	**865,018**	**1,516,645**	**50,856,010**	←

values to be summed
← total of the summation
– nil or zero

TABLE 2. Retained Earnings Statement, by NAICS Telecommunications Industries, 1999

NAICS Industry	51331	51332	51333	51334/9	5133
			thousands of dollars		
Opening balance	1,304,532	(2,133,129)	(99,336)	(114,612)	(1,042,545)
Net income or (loss)	1,803,733	(790,231)	(74,926)	(6,967)	931,609
Dividends declared	1,681,047	57,347	7,286	5,064	1,750,744
Other additions and deductions	(306,775)	(18,345)	(8,644)	(2,567)	(336,331)
Retained Earnings	1,120,443	(2,999,052)	(190,192)	(129,210)	(2,198,011)

TABLE 3. Income Statement by NAICS Telecommunications Industries, 1999

NAICS Industry	51331	51332	51333	51334/9	5133	
		(thousands of dollars)				+ +
Operating revenues and expenses:						
Operating revenues	22,823,457	4,700,430	963,502	525,331	29,012,720	
Operating expenses	18,630,395	4,792,720	1,188,493	472,984	25,084,592	
Operating income (loss)	4,193,062	(92,290)	(224,991)	52,347	3,928,128	+
Non-operating revenues and expenses:						
Investment income	499,322	17,546	3,909	2,697	523,474	+
Net gains on sale of assets, foreign exchange	77,052	2,880	384	2,103	82,419	+
Interest expenses:						
short term	187,545	60,578	4,804	2,232	255,159	
long term	1,242,762	522,010	16,396	16,594	1,797,762	
Total - Interest expenses	**1,430,307**	**582,588**	**21,200**	**18,826**	**2,052,921**	-
Write-offs and valuation adjustments	309,547	45,834	306	5,168	360,855	-
Other Non-operating revenues and expenses	26,552	(78,536)	(17,561)	(2,972)	(72,517)	+
Total - Non-operating revenues and expenses	**(1,136,928)**	**(686,532)**	**(34,774)**	**(22,166)**	**(1,880,400)**	← +
Income tax:						
Deferred	(58,704)	(3,231)	(83,399)	(28,115)	(173,449)	
Current	1,311,105	14,132	2,900	65,263	1,393,400	
Total - Income taxes	**1,252,401**	**10,901**	**(80,499)**	**37,148**	**1,219,951**	-
Net Income (Loss)	1,803,733	(789,723)	(179,266)	(6,967)	827,777	←

+/- operators indicate whether value should be added or substracted.
← total of the summation.

TABLE 4. Profit and Concentration Ratios, by NAICS Telecommunications Industries, 1999

NAICS Industry	51331	51332	51333	51334/9	5133
			(thousands of dollars)		
Operating statistics and ratios:					
EBITDA (Earnings before interest, taxes, depreciation and amortization)	8,742,458	922,795	-182,693	175,911	9,658,471
			(percentage)		
Operating margin	18.4	(2.0)	(23.4)	10.0	13.5
Pretax profit margin	13.4	(16.6)	(27.0)	5.7	7.1
Net profit margin	7.9	(16.8)	(18.6)	(1.3)	2.9
Pretax profit to assets	7.4	(10.8)	(30.0)	2.0	4.0
Return on equity	12.6	…	(350.1)	(1.3)	5.9
% of profitable reporting units (operating income)	87.5	74.6	61.4	63.6	72.5
% of profitable reporting units (net income)	84.4	64.4	53.4	45.5	64.9
Concentration (% of operating revenues):					
Top 10 reporting units	92.1	89.2	81.4	99.8	76.8
Top 30 reporting units	99.7	99.6	96.2	*xx*	94.5

xx less than 30 reporting units

TABLE 5. Revenues, by NAICS Telecommunications Industries, 1999

NAICS Industry	51331	51332	51333	51334/9	5133	
		(thousands of dollars)				+ +
TELECOMMUNICATIONS OPERATING REVENUES						
Carrier (wholesale) services:						
Contribution receipts	x	-	x	-	869,362	
Interconnection/settlements receipts	1,982,261	x	x	-	2,143,278	
Wholesale long distance	x	x	14,235	x	334,657	
Circuit rentals	210,059	x	x	x	393,282	
Other carrier services	x	x	x	x	597,833	
Total - Carrier (wholesale) services	**3,667,147**	**301,221**	**333,510**	**36,534**	**4,338,412**	▪
Retail services						
Voice services:						
Local telephony	6,539,305	2,978,797	65,362	-	9,583,464	
Long distance telephony:	5,911,164	405,306	x	x	6,781,093	
Calling Features	970,316	x	x	-	1,092,538	
Connection	293,570	x	x	x	347,189	
Total - Voice services	**13,714,355**	**3,552,352**	**x**	**x**	**17,804,284**	▪
Data & high speed switched services:						
Narrowband packet-switched services	598,662	-	x	-	x	
High speed packet-switched services	339,692	-	-	-	339,692	
High speed circuit-switched services	429,360	-	39,374	-	468,734	
High speed wireless-switched services	-	x	-	x	x	
Total - Data & high speed switched services	**1,367,714**	**x**	**x**	**x**	**1,408,178**	▪
Non-switched services:						
Narrowband services	965,603	-	-	-	965,603	
High speed services	x	x	x	x	549,642	
Total - Non-switched services	**x**	**x**	**x**	**x**	**1,515,245**	▪
Specialty wireless services:						
Paging	x	222,998	x	x	252,502	▪
Dispatch	-	x	x	-	59,184	▪
Administrative charges	-	x	-	x	146,147	▪
Other wireless narrowband services	-	9,236	-	-	9,236	▪
Other telecommunications services n.e.c.	x	x	x	x	222,713	▪
Total - Retail services	**16,465,832**	**4,020,995**	**594,818**	**335,844**	**21,417,489**	← ▪
Total - Telecommunications Opr. Revenues	**20,132,979**	**4,322,216**	**928,328**	**372,378**	**25,755,901**	←
Other Operating Revenues:						
Terminal equipment rental	351,925	x	-	x	370,196	
Sale of telecommunications goods	870,973	301,476	7,236	57,883	1,237,568	
Directory services	x	x	-	-	439,374	
Retail internet	139,834	-	11,629	-	151,463	
Installation	x	-	-	x	261,306	
Customer repairs	x	x	-	x	91,146	
Late payment and related charges	x	x	451	x	101,915	
Other services n.e.c.	498,055	43,215	15,858	46,723	603,851	
Total - Other Opr. Revenues	2,690,478	378,214	35,174	152,953	3,256,819	
Total - OPERATING REVENUES	22,823,457	4,700,430	963,502	525,331	29,012,720	
% of Total	78.7	16.2	3.3	1.8	100.0	

▪ values to be summed
← total of the summation
– nil or zero

TABLE 6. Revenues by Type of Customer, by NAICS Telecommunications Industries, 1999

NAICS Industry	51331	51332	51333	51334/9	5133
			(thousands of dollars)		
Residential	7,990,422	2,685,474	366,649	14,421	11,056,966
Business and other[1]	14,833,035	2,014,956	596,853	510,910	17,955,754
Total	**22,823,457**	**4,700,430**	**963,502**	**525,331**	**29,012,720**
			(%)		
Residential	35	57.1	38.1	2.7	38.1
Business and other[1]	65	42.9	61.9	97.3	61.9

[1] includes exports

TABLE 7. Revenues by Product and Type of Customer, NAICS 51331,[1] 1999

Product	Residential	Business and other	Total
		(%)	
Local services	51.0	49.0 [2]	100.0
Long distance services	51.7	48.3	100.0
Calling features	85.1	14.9	100.0
Connection	48.1	51.9	100.0
Terminal equipment rental	33.2 [2]	66.8	100.0
Sale of telecommunications goods	13.1	86.9	100.0
Directory publishing	7.0	93.0	100.0
Retail Internet access	46.3	53.7 [2]	100.0
Installations	59.5	40.5	100.0
Customer repair and maintenance	17.4	82.6 [2]	100.0

[1] based on detailed long questionnaire responses

[2] between 30% and 50% of value is imputed

TABLE 8. Operating Expenses, by NAICS Telecommunications Industries, 1999

NAICS Industry	51331	51332	51333	51334/9	5133		
TELECOMMUNICATIONS OPERATING EXPENSES		*(thousands of dollars)*				+	+
Telecom services production:							
Network operations	1,340,276	250,257	38,686	23,884	1,653,103	▪	
Depreciation	3,735,781	772,269	x	x	4,613,398	▪	
Maintenance and repairs	821,921	64,272	x	x	908,164	▪	
Circuit rentals:							
Wireline circuit rental	747,126	x	x	x	1,278,010		
Satellite-cellular capacity rentals	61,997	x	x	x	270,406		
Total - Circuit rentals	**809,123**	**216,352**	**431,121**	**91,820**	**1,548,416**	▪	
Purchased long-distance services	40,840	38,291	280,197	1,553	360,881	▪	
Contribution payments	1,248,118	x	x	-	1,265,830	▪	
Interconnection/settlement payments	2,767,572	85,916	x	x	2,857,613	▪	
Roaming payments	-	183,639	-	-	183,639	▪	
Other n.e.c.	197,514	x	x	x	209,186	▪	
Total - Telecom services provisioning	**10,961,145**	**1,628,124**	**781,909**	**229,052**	**13,600,230**	←	▪
Commercial and administrative support:							
Selling and marketing	1,441,652	910,901	62,155	34,130	2,448,838		
Customer servicing	108,946	112,281	11,435	3,497	236,159		
Billings and collections	228,785	119,541	9,976	2,191	360,493		
Corporate administration & general office expenses	1,303,831	293,315	104,766	37,484	1,739,396		
Telecommunications, postage and courier fees	126,260	32,490	1,499	2,265	162,514		
Insurance	17,194	x	x	x	27,909		
Advertising and related services	178,982	166,733	17,136	2,691	365,542		
Travel and entertainment	113,338	19,955	978	7,000	141,271		
Professional and business fees	191,359	80,635	12,832	7,617	292,443		
Mgnt fees paid to head office or parent company	16,239	159,294	x	x	190,067		
Depreciation and amortization	813,615	242,816	28,870	31,644	1,116,945		
Maintenance and repairs	147,973	x	x	x	167,727		
Office equipment rentals	12,356	x	-	x	13,143		
Bad debts expenses	173,741	57,227	12,367	3,350	246,685		
Licenses, permits and indirect taxes	472,562	157,822	651	5,237	636,272		
Other n.e.c.	475,161	169,311	99,465	1,651	745,588		
Total - Commercial and adm. support	**5,821,994**	**2,541,762**	**374,830**	**152,406**	**8,890,992**		▪
Occupancy costs:							
Land and buildings rental	378,867	54,231	x	x	443,913		
Utilities	97,125	x	x	x	117,984		
Property taxes	173,692	x	-	x	197,014		
Total - Occupancy costs	**649,684**	**92,297**	**8,938**	**7,992**	**758,911**		▪
Total - Telecommunications opr. expenses	17,432,823	4,262,183	1,165,677	389,450	23,250,133		←
Other operating expenses:							
Terminal equipment rentals	41,388	-	-	3,710	45,098		
Cost of telecommunications goods sold	791,937	x	x	x	1,354,060		
Directory expenses	111,044	-	-	-	111,044		
Retail internet	13,120	-	1,733	-	14,853		
Residual	240,083	x	x	x	309,404		
Total - Other operating expenses	1,197,572	530,537	22,816	83,534	1,834,459		
Total - OPERATING EXPENSES	**18,630,395**	**4,792,720**	**1,188,493**	**472,984**	**25,084,592**		

▪ values to be summed
← total of the summation
– nil or zero

TABLE 9. Employment, by NAICS Telecommunications Industries, 1999

NAICS Industry	51331	51332	51333	51334/9	5133
			(thousands of dollars)		
Salaries, wages and benefits:					
Expensed Labour:					
Telecommunications services:					
Telecom services production	1,395,517	122,743	6,480	23,833	1,548,573
Commercial and administration	2,639,886	528,773	116,302	55,700	3,340,661
Total - Telecommunications services	**4,035,403**	**651,516**	**122,782**	**79,533**	**4,889,234**
Other operating activities	91,114	37	744	10,375	102,270
Total - Expensed labour costs	**4,126,517**	**651,553**	**123,526**	**89,908**	**4,991,504**
Capitalized labour	875,580	120,312	1,412	6,961	1,004,265
Total - Salaries, wages and benefits	**5,002,097**	**771,865**	**124,938**	**96,869**	**5,995,769**
Employees:			*(persons)*		
Full - time	65,030	11,103	3,146	1,403	80,682
Part - time	9,116	2,962	439	20	12,537
Total - Employees	**74,146**	**14,065**	**3,585**	**1,423**	**93,219**
Full-time equivalent employees (FTE)	70,657	12,308	3,336	1,417	87,735 [1]
Analytical indicators:			*(dollars)*		
Revenue per FTE employee	323,018	381,900	288,820	370,735	330,686
Average labour costs per FTE employee	70,794	62,712	37,451	68,362	68,340
Labour expenses/total operating expenses (%)	22.1	13.6	10.4	19.0	19.9

[1] Industry FTE employee counts do not sum to the industry total because the characteristics used to estimate FTE's depend on how the respondents are aggregated. Thus each FTE employee estimate reflects the characteristics of each industry - when these are added together, the underlying assumptions change yielding a total different from the sum of the parts.

TABLE 10. Capital Expenditures, by NAICS Telecommunications Industries, 1999

NAICS category	51331	51332	51333	51334/9	5133
			(thousands of dollars)		
CONSTRUCTION					
Buildings:					
Network	71,237	x	-	x	83,961
Non-network	144,960	x	-	x	172,144
Total - Buildings	**216,197**	**x**	**-**	**x**	**256,105**
Transmission structures	109,230	x	-	x	275,216
Cables/lines:					
Metallic	405,671	-	-	-	405,671
Optical fibre	336,061	-	-	-	336,061
Total - Cables/lines	**741,732**	**-**	**-**	**-**	**741,732**
Other	103,520	x	x	x	292,080
Total - CONSTRUCTION	**1,170,679**	**x**	**x**	**x**	**1,565,133**
MACHINERY AND EQUIPMENT					
Transmission equipment	687,497	x	-	x	922,500
Switching equipment:					
Hardware	988,587	x	-	x	1,343,655
Software	367,513	x	-	x	522,788
Total - Switching equipment	**1,356,100**	**x**	**-**	**x**	**1,866,443**
Satellite	-	-	-	x	x
Terminal equipment	259,038	x	-	-	x
Other	785,358	430,889	x	x	1,360,196
Total - MACHINERY AND EQUIPMENT	3,087,993	x	x	x	4,417,175
Total - CAPITAL EXPENDITURES	4,258,672	1,374,055	140,196	209,385	5,982,308

– nil or zero

TABLE 11. International Trade, by NAICS Telecommunications Industries, 1999

NAICS Industry	51331	51332	51333	51334/9	5133
			(thousands of dollars)		
Exports (Receipts):					
Telecommunication services	1,310,217	17,025	55,251	87,348	1,469,841
Other services	-	-	1,024	1,591	2,615
Total services exports	**1,310,217**	**17,025**	**56,275**	**88,939**	**1,472,456**
Imports (Payments):					
Telecommunication services	1,331,400	x	x	x	1,368,525
Other services	20,020	-	2,031	80,397	102,448
Total services imports	**1,351,420**	**x**	**x**	**x**	**1,470,973**
Balance of payments:					
Telecommunication services	(21,183)	x	x	x	101,316
Other services	(20,020)	-	(1,007)	(78,806)	(99,833)
Net Balance of payments	**(41,203)**	**x**	**x**	**x**	**1,483**
Total two-way trade	**2,661,637**	**x**	**x**	**x**	**2,943,429**

– nil or zero

TABLE 12. Network Infrastructure, 1999

	Residential	Business	1999	1998	99/98 % change
PSTN access lines (at year end):					
Individual Lines	12,635,668	3,095,314	15,730,982	15,776,631	-0.3
Multi-party lines	107,275	1,720	108,995	133,571	(18.4)
ISDN BRA	450	80,549	80,999	69,975	15.8
ISDN PRA	…	24,453	24,453	20,563	18.9
Public telephones	…	182,345	182,345	180,382	1.1
Centrex	…	2,449,381	2,449,381	1,927,370	27.1
Official telephone lines	…	182,712	182,712	..	
Other	13	427,403	427,416	662,864	8.6
Total - PSTN access lines	**12,743,406**	**6,443,877**	**19,187,283**	**18,771,356**	**2.2**
PSTN access lines per 100 population	41.6	21.0	62.7	61.8	1.5
PSTN access lines - Voice grade equivalents (VGE)	**12,743,856**	**7,062,392**	**19,806,248**	**19,293,717**	2.7
PSTN access lines (VGE) per 100 population	41.6	23.1	64.7	63.6	1.7
Non-PSTN access lines:					
Analogue	..	..	x	31,504	
Digital	..	..	x	35,744	
Total - Non-PSTN access lines	**..**	**..**	**x**	**67,248**	

	Activations	Deactivations	1999	1998	
Wireless Subscribers		*(number of subscribers at year end)*			
Mobile Telephony:					
Digital subscribers:					
PCS@ 2 GHz	855,712	206,113	1,328,989	676,439	96.5
Other	127,383	31,454	1,263,016	730,592	72.9
Total - Digital subscribers	**529,671**	**97,041**	**2,592,725**	**1,407,031**	**84.3**
Analogue subscribers	1,445,789	1,078,460	4,318,313	3,950,984	9.3
Total - Mobile telephony subscribers	**1,975,460**	**1,175,501**	**6,911,038**	**5,358,015**	29.0
Mobile telephony subscribers per 100 population	6.5	3.8	22.6	17.7	27.7
Total - Paging, Narrowband PCS	**696,170**	**484,042**	**1,835,559**	**1,623,431**	**13.1**
RCC (Radio Common Carriage)	..	..	94,998	68,067	39.6
Fixed Satellite	..	..	792	724	9.4
Mobile Satellite	..	..	34,424	11,281	205.2

	1999	1998	
Switches:			
Digital switches:			
ATM / IP	292	392	(25.5)
Circuit	3,371	3,298	2.2
Total - Digital switch	**3,663**	**3,690**	**(0.7)**
Analogue switches	134	205	(34.6)
Total - Switches	**3,797**	**3,895**	**(2.5)**
Cell/repeater sites:			
Digital mobile telephony:			
PCS@ 2 GHz	2,281	1,835	24.3
Other	2,557	893	186.3
Total - Digital mobile telephony cell sites	**4,838**	**2,728**	**77.3**
Total - Analogue mobile telephony cell sites	**2,047**	**3,080**	**(33.5)**
Total - Mobile telephony cell sites	**6,885**	**5,808**	**18.5**
Paging cell sites	743	772	(3.8)

TABLE 13. Selected Connectedness Indicators, 1999

	1999	1998	99/98 % change
PSTN Teledensity			
Access paths:			
Wireline access lines to the PSTN	19,187,283	18,771,356	2.2
Mobile access paths to the PSTN	6,911,038	5,365,459	28.8
Total - Access to the PSTN	**26,098,321**	**24,136,815**	**8.1**
Wireline access to the PSTN per 100 population	62.7	61.8	1.5
Mobile access to the PSTN per 100 population	22.6	17.7	27.7
Total - PSTN access per 100 population	**85.2**	**79.5**	**7.2**
VGE Access paths:			
Wireline access to the PSTN	19,806,248	19,293,717	2.7
Mobile access to the PSTN	6,911,038	5,365,459	28.8
Total - Access to the PSTN	**26,717,286**	**24,659,176**	**8.3**
Wireline access to the PSTN per 100 population	**64.7**	**63.6**	**1.7**
Mobile access to the PSTN per 100 population	**22.6**	**17.7**	**27.7**
Total - PSTN access per 100 population	**87.3**	**81.2**	**7.5**

	Residential	Business	1999	1998	
PSTN Digitalization:					
Access lines -					
connected to digital switches	12,683,386	6,421,894	19,105,280	18,679,088	2.3
connected to analogue switches	60,020	21,983	82,003	92,268	(11.1)
Total - PSTN lines	**12,743,406**	**6,443,877**	**19,187,283**	**18,771,356**	**2.2**
Digital lines as a % of PSTN lines			99.6	99.5	0.1
Mobile Access paths:					
Digital			2,592,725	1,414,475	83.3
Analogue			4,318,313	3,950,984	9.3
			6,911,038	5,365,459	28.8
Digital access paths as % of PSTN mobile access			37.5	26.4	42.0
Total - Digital access to the PSTN			**21,698,005**	**20,093,563**	**8.0**
Total - Analogue access to the PSTN			**4,400,316**	**4,043,252**	**8.8**
Total - PSTN access			**26,098,321**	**24,136,815**	**8.1**
Total % Digital access			**83.1**	**83.2**	**(0.1)**

TABLE 14. Long Distance Traffic (Conversation minutes), NAICS 51331 and 51333, 1999

NAICS Industry	51331	51333	Total
Conversation minutes		*(thousands of minutes)*	
Calls and messages			
Outgoing - Canada to:			
Canada	24,826,181	2,309,966	27,136,147
USA	3,131,317	288,518	3,419,835
Overseas	2,532,582	176,412	2,708,994
Total - Outgoing	**30,490,080**	**2,774,896**	**33,264,976**
Toll free - to Canada from:			
Canada	4,779,849	76,225	4,856,074
USA	x	-	x
Overseas	x	-	x
Total - Toll free	**5,300,724**	**76,225**	**5,376,949**
Summary of calls originating in Canada, to:			
Canada	29,606,030	2,386,191	31,992,221
USA	x	288,518	x
Overseas	x	176,412	x
Total - Calls originating in Canada	**35,790,804**	**2,851,121**	**38,641,925**
International incoming to Canada from:			
USA	x	-	x
Overseas	x	-	x
Total - International incoming	**4,127,154**	**-**	**4,127,154**
Long distance traffic summary:			
Domestic carriage	29,606,030	2,386,191	31,992,221
International:			
USA	x	288,518	x
Overseas	x	176,412	x
Total - International	**10,311,928**	**464,930**	**10,776,858**
Total - Long distance carriage[1]	**39,917,958**	**2,851,121**	**42,769,079**

[1] excluding transit traffic
– nil or zero

TABLE 15. Long Distance Traffic (Billed minutes), NAICS 51332, 1999

NAICS Industry	Local	Long distance	Total
		(thousands of minutes)	
Calls and messages			
within Canada	11,887,715	1,175,886	13,063,601
to or from the USA		184,626	184,626
to or from Overseas		8,977	8,977
Total - Billed minutes	**11,887,715**	**1,369,489**	**13,257,204**

TABLE 16. Profit and Loss Statement, by Province, NAICS 5133, 1999

	Newfoundland	Prince Edward Island	Nova Scotia	New Brunswick	Québec	Ontario
			(thousands of dollars)			
Operating Revenues						
Local telephony	x	x	333,711	x	2,028,849	3,700,121
Long distance telephony	163,710	x	186,577	167,149	1,437,055	2,697,111
Data and high speed services		-	x	x	562,535	640,794
Non-switched services		-	6,622	2,983	327,927	830,411
Paging	x	x	x	x	86,587	96,418
Dispatch	-	x	x	x	33,692	10,174
Other telecommunications services n.e.c.	x	x	158,369	130,904	1,984,525	2,179,221
Telecommunications operating revenues	x	x	701,336	539,490	6,461,170	10,154,250
Other operating revenues	x	x	72,148	62,120	704,617	1,484,240
Total - Operating Revenues	**438,865**	x	**773,484**	**601,610**	**7,165,787**	**11,638,490**
Operating Expenses						
Telecommunications operating expenses	x	x	554,681	x	6,049,473	9,408,381
Other operating expenses	x	x	44,629	x	365,464	979,928
Total - Operating Expenses	**338,457**	**x**	**599,310**	**475,493**	**6,414,937**	**10,388,309**
Operating Profit	100,408	x	174,174	126,117	750,850	1,250,181
(%)	22.9	x	22.5	21.0	10.5	10.7
		x				

	Manitoba	Saskatchewan	Alberta	British Columbia	Yukon Nunavut Northwest Territories	Canada
			(thousands of dollars)			
Operating Revenues						
Local telephony	290,394	x	1,166,328	1,335,757	x	9,583,464
Long distance telephony	172,139	x	678,036	1,008,316	x	6,781,093
Data and high speed services	x	x	x	131,496	x	1,408,178
Non-switched services	x	x	33,926	174,088	x	1,515,245
Paging	3,408	1,182	21,116	x	x	252,502
Dispatch	x	-	x	x	-	59,184
Other telecommunications services n.e.c.	133,699	109,517	592,893	747,765	x	6,156,235
Telecommunications operating revenues	x	x	2,524,272	3,432,655	x	25,755,901
Other operating revenues	x	x	203,080	425,482	x	3,256,819
Total - Operating Revenues	**814,492**	**777,108**	**2,727,352**	**3,858,137**	**x**	**28,493,936**
Operating Expenses						
Telecommunications operating expenses	668,838	x	**2,062,216**	2,909,044	x	23,250,133
Other operating expenses	9,339	x	137,448	216,168	x	1,834,459
Total - Operating Expenses	**678,177**	**x**	**2,199,664**	**3,125,212**	**x**	**25,084,592**
Operating Profit	136,315	x	527,688	732,925	x	3,928,128
(%)	16.7	x	19.3	19.0	x	13.5

– nil or zero

TABLE 17. Selected Operating Indicators, by Province, NAICS 5133, 1999

	Newfoundland	Prince Edward Island	Nova Scotia	New Brunswick	Québec	Ontario
Establishments	5	4	14	8	68	125
Capital Expenditures			*(thousands of dollars)*			
Construction	x	x	22,207	x	281,299	659,719
Machinery and equipment	x	x	67,265	x	1,134,916	1,908,589
Total - Capital expenditures	**80,736**	**x**	**89,472**	**131,621**	**1,416,215**	**2,568,308**
% of operating revenues	18	x	11.6	21.9	19.8	22.1
Employment			*(persons)*			
Full-time	x	x	x	x	17,340	29,868
Part-time	x	x	x	x	3,337	5,652
Total - Employment	**x**	**x**	**x**	**x**	**20,677**	**35,520**
Labour Costs			*(thousands of dollars)*			
Salaries and wages	x	x	123,005	101,263	1,304,687	2,049,163
Benefits	x	x	8,248	7,643	159,629	225,241
Total - Labour Costs	**x**	**x**	**131,253**	**108,906**	**1,464,316**	**2,274,404**
% of operating revenues	x	x	17.0	18.1	20.4	19.5
Wireless Subscribers			*(subscribers)*			
Total - Mobile telephony	**x**	**x**	**x**	**x**	**1,235,713**	**2,948,721**
Paging	-	x	29,187	x	728,535	635,488
RCC			-	-	57,099	22,434
Switches	x	x	x	x	922	1,171
Cell sites (Mobile telephony)	x	x	x	x	1,378	3,814
			(persons)			
Population	540,072	137,974	941,197	755,085	7,363,695	11,587,665

	Manitoba	Saskatchewan	Alberta	British Columbia	Yukon Nunavut Northwest Territories	Canada
Establishments	12	9	28	49	7	329
Capital Expenditures			*(thousands of dollars)*			
Construction	x	37,146	156,993	331,620	x	1,565,133
Machinery and equipment	x	130,371	304,837	493,292	x	4,417,175
Total - Capital expenditures	**188,906**	**167,517**	**461,830**	**824,912**	**x**	**5,982,308**
% of operating revenues	23.2	21.6	16.9	21.4	x	20.6
Employment			*(persons)*			
Full-time	x	4,118	7,592	5,995	x	80,682
Part-time	x	388	460	1,041	x	12,537
Total - Employment	**x**	**4,506**	**7,036**	**14,044**	**x**	**93,219**
Labour Costs			*(thousands of dollars)*			
Salaries and wages	x	215,510	514,291	730,085	x	5,318,191
Benefits	x	19,660	80,672	133,768	x	677,578
Total - Labour Costs	**x**	**235,170**	**594,963**	**863,853**	x	**5,995,769**
% of operating revenues	x	30.3	21.8	22.4	x	20.7
Wireless Subscribers			*(subscribers)*			
Total - Mobile telephony	**x**	**228,095**	**876,076**	**1,027,195**	x	**6,911,038**
Paging	x	12,076	121,147	237,358	x	1,835,559
RCC		-	x	x	-	94,998
Switches	x	16	x	449	x	3,797
Cell sites (Mobile telephony)	x	x	1,016	1,216	x	6,885
			(persons)			
Population	1,143,741	1,023,956	2,979,612	4,044,803	98,780	30,616,580

– nil or zero

TABLE 18. Household Indicators, by Province, 1999

		% of household with telephones				
		Fixed				Mobile
	Number of households (000)	At least one phone	One	Two	Three or more	At least one phone
Canada	**11,553**	**98.2**	**23.0**	**34.4**	**40.8**	**31.9**
Newfoundland	192	96.9	19.4	36.4	41.2	21.4
Prince Edward Island	51	98.1	22.0	38.9	37.3	19.8
Nova Scotia	357	98.6	20.8	36.7	41.1	28.4
New Brunswick	283	97.4	23.1	39.6	34.8	23.6
Quebec	2,977	97.6	28.9	34.1	34.6	20.2
Ontario	4,354	98.7	19.0	33.6	46.1	36.9
Manitoba	420	98.0	23.6	33.4	41.0	30.4
Saskatchewan	380	98.0	28.0	38.9	31.1	34.2
Alberta	1,072	99.1	15.8	32.7	50.6	44.8
British Columbia	1,537	97.6	26.9	35.4	34.8	36.1
Yukon, NWT	28	92.3	32.8	34.6	33.1	11.6

Source: Spending Patterns in Canada, Statistic Canada, 1999, Catalogue 62-202-XPE

* *For personal use, this does not include mobilephones provided by employers.*

** *Yukon and NWT totals only, data not available for Nunavut.*

TABLE 19. Household Communications Expenditures, Canada and the Provinces, 1999

	Number of household	Average expenditure per household	% of total household expenditure
	000's)	*(dollars)*	
Canada	**11,210**	**973**	**1.8**
Newfoundland	186	912	2.1
Prince Edward Island	50	915	2.0
Nova Scotia	348	980	2.1
New Brunswick	277	850	1.9
Quebec	2,869	762	1.6
Ontario	4,148	1,058	1.8
Manitoba	406	933	1.9
Saskatchewan	367	964	2.1
Alberta	1,045	1,120	1.9
British Columbia	1,487	1,078	2.0
Yukon	9	1,322	2.2
Northwest Territories	11	1,449	1.8
Nunavut	7	1,057	2.2

Source: Spending Patterns in Canada, 1999, catalogue no. 62-202-XIE.

Definition: Expenditures for household communications fall within the category "Household operation". These expenditures include purchase of telephones and equipment, telephone services, installation and repair. Also included are cellular services, internet services and postal and other communications services.

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The Canadian Telecommunications Industry

Market Shares and Performance
- Facts and Figures

Haig McCarrell authored the initial report, covering the 1997-1998 period.
Heidi Ertl completed the revisions and updates to 1999.

Introduction

The deregulation of the Canadian telecommunications industry, and the increasingly competitive environment in which its participants operate has created a demand for information in order to monitor and measure the industry's performance in light of these changes. Specifically, there is interest in measuring the market shares held by the various constituents of the telecommunications sector, by the different types of industries,[1] suppliers, and by small and medium enterprises (SME's). This paper focuses on the analysis of market shares by type of supplier and revenue size. It is an update of earlier telecommunications market analysis presented in the 1997 and 1998 editions of Telecommunications in Canada (Cat. No. 56-203).

While official statistics arrange telecommunications service providers into industries according to the North American Industry Classification System (NAICS)[2], the analysis here regroups these same companies into supplier groups that are helpful in addressing the questions outlined above. The service providers have been grouped as follows:

- wireline incumbents,
- wireline entrants,
- mobile telephony providers (cellcos),
- the paging industry, and
- all other service providers.

This "supplier classification" can be related to the NAICS telecommunications industries. For example, NAICS 51331 – the wired telecommunications industry – consists of incumbent and entrant facilities-based carriers. The supplier classification separates the 51331 NAICS industry into incumbent and entrant carriers and adds to the latter group other wireline entrants, namely wireline resellers – part of the NAICS reseller industry – 51333, to provide a complete portrait of wireline entrants.

NAICS 51332 consists of facilities-based wireless companies: cellcos (cellular, PCS, ESMR and automatic mobile telephony carriers), paging companies and radio common carriers. The first group, cellcos, stand alone as a supplier group and the second group, pagers, have been combined with paging resellers (part of NAICS 51333 - resellers) to create a portrait of this industry. All other service providers form the last supplier category. These are chiefly satellite facilities providers and satellite resellers.

The other major analytical grouping adopted pertains to the size of the service providers based on their operating revenues:

- large (> $100 million in revenues),
- medium (> $10 million and < = $100 million in revenues), and
- small (< = $10 million in revenues).

The report also examines the long distance and paging markets, two of the most competitive markets in the industry. Where possible, 1999 results are compared to those posted in 1998, and 1997.

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[1] *for a complete analysis of the telecommunications industries, see Statistics Canada Cat. No. 56-203 (annual statistics) and Statistics Canada Cat. No. 56-002 (quarterly statistics).*
[2] *for further information on the NAICS -see Statistics Canada catalogue number 12-501-XPE.*

Supplier market share and performance

In 1999, the telecommunications sector generated just over $29.0 billion in **operating revenues**. The wireline segment of the industry generated 23.8 billion dollars in revenues - $20.3 billion by incumbent carriers (85.3% of the wireline total) and $3.5 billion by entrants (facilities-based carriers and resellers). To date, entrants have grown to account for 14.7% of the wireline market and 12.0% of the whole sector. This share has increased over the last two years, from 13.2% in 1997 and 13.5% in 1998.

Most of the revenues in the entrant group are now earned by facilities-based entrants, whereas in the early years, the bulk of entrant activity was reselling. Facilities-based carriers now account for 73.4% of entrant revenue activity.

Between 1997 and 1999, total wireline **assets** increased by 16.2%. Over the same period, the entrants' share of total wireline assets went from 10.5% to 20.6%. Their asset share now stands 43% above their corresponding revenue share. The new assets

TABLE 1. Financial performance statistics, by supplier category, 1999

	Wireline					
	Incumbents	Entrants	Cellcos	Pagers	Residual	Total
Number of units reporting	57	90	26	32	17	222
	(thousands of dollars)					
Operating revenues	20,257,807	3,494,407	4,520,745	168,313	571,448	29,012,720
Operating expenses	15,615,280	4,157,620	4,631,474	165,699	514,519	25,084,592
Operating income (loss)	4,642,527	(663,213)	(110,729)	2,614	56,929	3,928,128
Net income (loss)	2,245,912	(605,876)	(803,319)	(14,069)	5,129	827,777
Assets	33,447,968	8,683,181	6,974,935	181,412	1,568,514	50,856,010
Equity	12,986,650	1,463,141	(1,046,238)	(35,974)	554,169	13,921,748
Operating statistics and ratios			*(%)*			
Operating profit margin	22.9	(19.0)	(2.4)	1.6	10.0	13.5
Net income margin	11.1	(17.3)	(17.8)	(8.4)	0.9	2.9
Units reporting operating profits	98.2	58.9	73.1	65.6	70.6	72.5
Units reporting net income	94.7	51.1	65.4	56.3	52.9	64.9
Capital expenditures						
Capital expenditures	3,514,035	879,430	1,348,352	20,298	220,193	5,982,308
% of operating revenue	17.3	25.2	29.8	12.1	38.5	20.6
Employment						
Employees (full- and part-time)	66,983	10,513	13,234	882	1,607	93,219
Employees (FTE)	63,377	10,274	11,715	660	1,599	87,735
Labour costs	4,584,632	532,042	735,516	35,289	108,290	5,995,769
% of operating revenue	22.6	15.2	16.3	21.0	19.0	20.7
	(dollars per employee)					
Average FTE salary[1]	72,340	51,786	62,782	53,468	67,724	68,340
Revenues per FTE employee	319,642	340,127	385,884	255,019	357,378	330,686
Competition and market shares						
Concentration - % of total revenues						
Top 10 revenue reporters	95.3	92.1	92.7	93.3	99.0	76.8
Top 5 revenue reporters	83.1	85.2	76.2	86.0	88.0	60.6
Supplier shares (% of sector total)						
Number of units reporting	25.7	40.5	11.7	14.4	7.7	100.0
Operating revenues	69.8	12.0	15.6	0.6	2.0	100.0
Operating expenses	62.3	16.6	18.5	0.7	2.1	100.0
Assets	65.8	17.1	13.7	0.4	3.1	100.0
Equity	93.3	10.5	(7.5)	(0.3)	4.0	100.0
Capital expenditures	58.7	14.7	22.5	0.3	3.7	100.0
Employees	71.9	11.3	14.2	0.9	1.7	100.0
Labour costs	76.5	8.9	12.3	0.6	1.8	100.0

[1] Industry FTE employee counts do not sum to the industry total because the characteristics used to estimate FTE's depend on how the respondents are aggregated. Thus, each FTE employee estimate reflects the characteristics of each industry - when these are added together, the underlying assumptions change yielding a total different from the sum of the parts.

were financed increasingly by **equity** rather than debt, as the entrants' share of wireline equity grew from 5.9% in 1997 to 10.6% in 1998, dropping slightly in 1999 to 10.1%.

The growth in assets is directly related to the growth in **capital spending**. This is particularly important for entrants' who are making large investments to build their networks. Even though the incumbents account for nearly 59% of sector capital spending, this translates into 17.3% of their operating revenues whereas the entrants' 14.7% of total sector spending represents 25.2% of their revenues. Although the high spending by incumbents reflects their commitment to keep abreast of technological changes, the entrants clearly have a challenge in even establishing a presence in incumbent operating territories.

The capital investment and resulting asset position of the entrants was not rewarded with positive profits. Between 1997 and 1999, **operating income** increased 13.7% to $4.6 billion for the incumbents, but pushed further into the red for the entrants. Losses were more than four times what were reported in 1997, falling from -$143.7 million in that year to -$663.2 million in 1999.

The other major provider of telecommunications is the **mobile telephony industry**. These services are a potential direct competitor (substitute) to fixed (wireline) services. To date it appears these products have complemented the fixed telecommunications services - leading to an overall expansion of the market for telecommunications services. By most size measures, mobile telephony providers are the second largest suppliers of telecommunications in Canada. Mobile telephony companies account for 15.6% ($4.5 billion) of sector revenues and 13.4% of sector employees (full-time equivalents). This sector showed strong investment in 1999, spending just over $1.3 billion, or 29.8% of its operating revenues. The mobile supplier group has assets of $7.0 billion, however its equity position is negative (-$1.0 billion), reflecting accrued losses from 1999 and 1998.

Overall, the **ten largest service providers** account for 76.8% of total sector revenues, a marginal decrease from last year when the top ten reporters accounted for 78.4% of total revenue. In keeping with last year's results, the individual market segment shares are quite concentrated. Over 90% of revenues are earned by the top ten companies in each supplier group.

Between 1998 and 1999, each supplier group reported similar results or small increases in **concentration** based on this measure. The most concentrated market share is the residual group (mainly satellite services providers) whose top ten providers accounted for 99.0% of revenues.

These measures, especially in the case of wireline providers, tend not to accurately reflect the true extent of market concentration because the data as it is presented assumes a national telecommunications market. The wireline sector markets, in particular, are largely sub-national reflecting the incumbent carriers' traditional operating territories (provinces). The wireless markets tend to cross provincial boundaries, so the measures presented are more reflective of the competitive environment facing these various service providers.

A high level of concentration does not guarantee profitability. Even though each supplier group is similarly and highly concentrated, only about half of wireline entrants posted positive operating income in 1999. However, the number of paging and satellite companies reporting operating income increased between 1998 and 1999, from 51.2% to 65.6% for paging and 53.3% to 70.6% for satellite. In marked contrast, 98.2% of incumbent carriers were profitable and 73.1% of cellcos were profitable. The comparatively high number of profitable units in the cellco market segment still resulted in overall losses for the group of $111 million compared to the incumbents who reported $4.6 billion in operating profits.

The telecommunications sector is an important employer. In total 93,219 persons were employed, or approximately 87,735 persons on a full-time equivalent (FTE) basis. Incumbent carriers have a higher proportion of **employees** than their share of the market activity would suggest. This may reflect operating realities of this supplier category. The wireline entrants, which employ infrastructure similar to the incumbents, reported a slightly smaller share of total employees (FTE) (11.7%) than their share of total operating revenues (12.0%). As would be expected, a lower level of employment to revenue means **higher revenues per FTE employee**. This shows up in the entrants' higher level of revenue per employee compared to the incumbents. Wireline entrants reported $340,127 of output (revenue) per employee (FTE) compared to the incumbent telcos which reported $319,642 per employee (FTE). This probably reflects the fact that entrants tend to target business customers over residential customers, which yield higher revenues and therefore higher returns per employee. Cellcos and residuals also had high outputs per FTE employee ($385,884 and $357,378, respectively) - well above the sector average of $330,686. Paging companies had the lowest revenue per employee, $255,019.

Employee remuneration does not appear to depend solely on revenue per employee. The wireline entrants, cellcos and the residual group, all with higher revenues per employee than the incumbents, had lower average employee remuneration than that of the incumbents.

Despite paging companies paying relatively lower full-time salaries on average, their labour costs as a share of their revenues were still relatively high (21.0%). This contrasts to that of the high wage paying cellcos and residuals whose wage bills were only 16.0% and 19.0% of their revenues, respectively.

Firm size - Market share and performance

The Canadian telecommunications industry, like most telecommunications industries around the world, has been dominated by large service providers holding a territorial monopoly. Opening the telecommunications market to competition has provided an opportunity for smaller firms to play a more prominent role. The table below provides basic financial and operating statistics by firm size.

TABLE 2. Financial performance statistics, by firm size (revenue), 1999

	Large	Medium	Small	Total
	> $100 million	> $10 million to $100 million	< = $10 million	
Number of units reporting	30	39	153	222
	(thousands of dollars)			
Operating revenues	27,429,626	1,309,966	273,128	29,012,720
Operating expenses	23,564,312	1,265,944	254,336	25,084,592
Operating income (loss)	3,865,314	44,022	18,792	3,928,128
Net income (loss)	871,314	(22,048)	(21,489)	827,777
Assets	48,358,682	1,845,909	651,419	50,856,010
Equity	12,834,194	747,800	339,754	13,921,748
Operating statistics and ratios		*(%)*		
Operating profit margin	14.1	3.4	6.9	13.5
Net income margin	3.2	(1.7)	(7.9)	2.9
Units reporting operating profits	73.3	64.1	74.5	72.5
Units reporting net income	60.0	66.7	65.4	64.9
Capital expenditures				
Capital expenditures	5,544,864	228,670	208,774	5,982,308
% of operating revenue	20.2	17.5	76.4	20.6
Employment				
Employees (full- and part-time)	86,557	4,850	1,812	93,219
Employees (FTE)	81,519	4,461	1,702	87,735
Labour costs	5,704,264	230,302	61,203	5,995,769
% of operating revenue	20.8	17.6	22.4	20.7
		(dollars per employee)		
Average FTE salary	69,975	51,622	35,967	68,340
Revenues per FTE employee	336,483	293,626	160,509	330,686
Firm size group shares				
Group shares (% of sector total)				
Number of units reporting	13.5	17.6	68.9	100.0
Operating revenues	94.5	4.5	0.9	100.0
Operating expenses	93.9	5.0	1.0	100.0
Assets	95.1	3.6	1.3	100.0
Equity	92.2	5.4	2.4	100.0
Capital expenditures	92.7	3.8	3.5	100.0
Employees	92.9	5.2	1.9	100.0
Labour costs	95.1	3.8	1.0	100.0

[1] Industry FTE employee counts do not sum to the industry total because the characteristics used to estimate FTE's depend on how the respondents are aggregated. Thus, each FTE employee estimate reflects the characteristics of each industry - when these are added together, the underlying assumptions change yielding a total different from the sum of the parts.

In 1999, nearly nine out of ten firms in the telecommunications sector were small or medium enterprises (SME's), based on revenues. The majority of SMEs fall into one of the following categories: independent local telephone companies, independent paging companies, resellers of wireline services and resellers of satellite services. Their presence is most significant in the *reseller* industry where they accounted for 59% of total revenues. At the opposite end of the spectrum, SMEs generated only 1.8% of total revenues of facilities-based wireline carriers.

Despite their numerical importance, SME's totalled only 5.5% of sector revenue, while employing 7.1% of the sector's workforce. This translates to output per employee being about one third less than large companies. The lower productivity also shows up in employment remuneration – the average full-time equivalent salary for medium and small size company employees is 73.8% and 51.4% of large companies respectively.

In 1999, SME operating incomes rebounded to $63 million from their 1998 and 1997 loss position. Their net incomes, however, were still in the red, albeit significantly reduced. In comparison, large firms posted positive operating profits in 1999, 1998 and 1997, however, they have also been declining ($4.6 billion in 1997 to $3.9 billion in 1999). In 1999, large firm operating incomes were 14.1% of their operating revenues while the SME's margin was 4%.

The number of firms reporting operating profits this year declined among large firms. Only 73.3% of large firms reported operating profits in 1999 compared to 77.8% in 1998 and 95.7% in 1997. The corresponding value for medium firms was 64.1% this year, compared to 60.5% in 1998 and 66.1% in 1997. The most noticeable change was among small firms, where 74.5% reported operating profits in 1999 compared to 64.3% in 1998 and 68.6% in 1997.

Despite SME net losses, proportionately more of them reported profits than did large firms. About 67% of medium sized firms were profitable, followed by small firms (65.4%) and lastly, large firms (60.0%). Net income reflects non-operating activity and is likely to be more volatile than operating income, so these results should not be considered to be reflective of any trend.

TABLE 3. Financial performance statistics, % change (1999/98) for supplier categories

	Wireline					
Supplier category	**Incumbents**	**Entrants**	**Cellcos**	**Pagers**	**Residual**	**Total**
% change (1999/98)						
Number of units reporting	(3.4)	(9.1)	8.3	(22.0)	13.3	(6.7)
Operating revenues	(1.0)	9.0	7.8	(2.2)	25.8	1.8
Operating expenses	(3.5)	19.0	5.8	(5.5)	19.2	1.7
Operating income (loss)	8.5	130.0	(39.2)	(183.2)	153.7	2.6
Net income (loss)	106.9	(6.9)	8.6	(6.6)	(164.7)	(352.9)
Assets	5.1	27.8	3.9	(8.8)	6.8	8.2
Equity	(0.2)	(4.9)	(9.2)	(15.7)	41.5	1.3
Operating statistics and ratios						
Operating profit margin	9.6	110.9	(43.6)	(185.1)	101.6	0.8
Net income margin	109.0	(14.6)	0.8	(4.5)	(151.5)	(348.3)
Number of units reporting operating profits	(0.1)	14.3	3.2	28.1	32.4	11.4
Number of units reporting net income	3.5	5.4	(1.9)	15.3	(0.7)	5.7
Capital expenditures						
Capital expenditures	(0.6)	(21.0)	(5.3)	(7.6)	(37.5)	(7.2)
% of operating revenue	0.4	(27.5)	(12.1)	(5.5)	(50.3)	(8.9)
Employment						
Employees (full- and part-time)	(7.8)	21.3	11.2	9.0	14.1	(2.3)
Employees (FTE)	(8.0)	23.6	3.7	(15.4)	14.8	(3.2)
Labour costs	6.8	13.8	19.8	(17.4)	17.0	8.8
% of operating revenue	7.9	4.3	11.2	(15.5)	(7.0)	6.9
Average FTE salary	16.2	(7.9)	15.6	(2.4)	1.9	12.5
Revenues per FTE employee	7.6	(11.8)	4.0	15.6	9.6	5.2
Competition						
Concentration - % of total revenues						
Top 10 revenue reporters	1.1	0.9	(0.2)	1.1	(0.1)	(2.0)
Top 5 revenue reporters	0.0	1.4	(4.9)	1.6	(2.8)	(1.9)

The telecommunications sector is going through a transitional period as the sector continues to restructure. This is most evident in the fact that capital expenditures for medium sized firms were 84.1% of their revenues in 1998 and only 17.5% of their revenues in 1999. Small firms reported a remarkable level of capital spending, representing 76.4% of their revenues, up from only 13.0% in 1998. This is a strong indication that these firms anticipate market opportunities in the future. It remains to be seen if this level of investment translates to better operating results in subsequent years. Capital spending for the large enterprises was substantial and steady, at 19.2% of their revenues in 1998, and 20.2% in 1999.

The long distance market

The Canadian long distance market was $6.8 billion in 1999, or 23.4% of all revenues earned by telecommunications services providers. This market has been, and remains, at the centre of the new competitive environment in the telecommunications sector. Prior to 1992, this market was almost entirely held by wireline local telephone companies. By 1999, this share had dropped to 67.9 %, relatively unchanged from 1998 (when incumbent share was 66.7%). Alternative wireline service providers claimed a 24.9% share (down from 28.4% in 1998) whereas wireless service providers increased their share from 4.5% to 6% (there was a 1.2% residual earned by saltellite and other companies).

The paging market

The Canadian paging market decreased by just over 2% from last year and is valued at $253 million in 1999. Paging companies held the greatest share (50.6%) of this market, followed by cellco paging operations (37.7%) and paging services resellers (11%). A residual amount of 0.7% was reported by companies having a main activity in other telecommunications industries.

Conclusion

The Canadian telecommunications industry has rapidly evolved since the introduction of market liberalization in Canada. Largely as a result of an Industry Canada - Statistics Canada partnership in redeveloping the former telephone survey, it is now possible to assess the relative importance of the players.

An additional feature that is expected to enhance the understanding of the state of competition in the marketplace is the introduction of provincial competitiveness indexes for various market segments, products and size groupings. This will enable policy makers and other analysts to track the changing nature of the industry, the economic impacts and market shares of the different types of entities, as well as how each of them performs with respect to other industry participants.

Look for a more in-depth analysis of the state of competition in the telecommunications industry this spring, in the Connectedness Series publication.

Figure 1. Long distance market shares

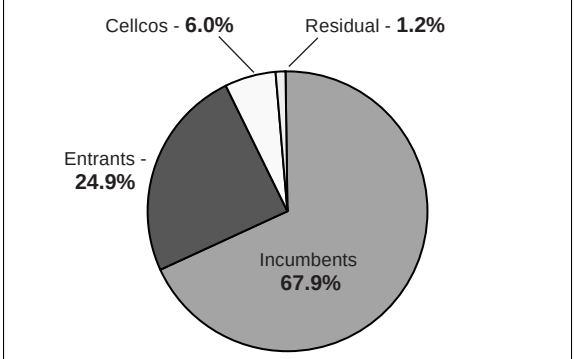
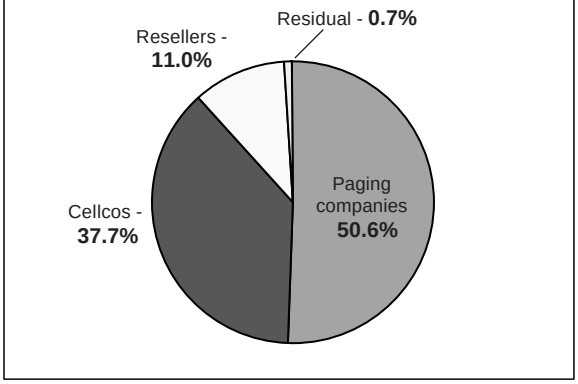


Figure 2. Paging market shares



ABOUT THE SURVEY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Survey Objectives

The Survey of Telecommunications Service Providers collects financial and operating data for the statistical measurement and analysis of the telecommunications industry. These data are aggregated to produce estimates of national and, where feasible, provincial economic production in Canada, as well as estimates of activity by industry. These estimates are used by:

- government for national and regional programs and policy planning,
- the private sector for industry performance measurement and market development, and,
- international telecommunications organizations and the general public to better understand this sector's role in the social and economic fabric of Canada.

Survey Coverage

The Annual Survey of Telecommunications Service Providers is a census of business establishments in Canada where the main revenue activity is the provision of telecommunications services (the transmission of voice, data, text, image and video). These companies may also provide services closely related to their provision of telecommunications services such as directory publishing, equipment rental and sales, equipment installation, consulting, etc.

The target universe for the survey corresponds to companies classified to the North American Industry Classification System (NAICS) for the Telecommunications Industry (5133). The NAICS Telecommunications Industry is differentiated into five constituent industries: Wired (51331); Wireless (51332); Reseller (51333); Satellite (51334) and Other (51339).[1] The Wired industry includes incumbent telcos such as Bell Canada and SaskTel; alternative facilities-based providers such as AT&T Canada Inc. and competitive access providers, e.g., C1 Communications Inc; and independent providers such as Prince Rupert Telephones, Ontario Northland and Co-op de Téléphone de Valcourt. Wireless companies include cellcos such as Rogers Cantel AT&T, Telus Mobility and MT&T Mobility, and paging companies, such as Pagemart and Northstar. Resellers resell wireline and wireless services such as long distance telephony and paging. Resellers also include single hop or extended area services companies. The reselling of satellite services are not part of the Reseller industry but are part of the Satellite industry along with Canada's satellite carrier, Telesat Canada. Lastly, companies which do not clearly fall into one of the designated groups above are classified into the 'Other' telecommunications industry.

The following table indicates the number of respondents to the 1999 Annual Survey of Telecommunications Service Providers, by 5-digit NAICS category:

NAICS Category	NAICS Code	Number of Respondents	
		1998	*1999*
Wired Telecommunications Carriers	51331	67	64
Wireless Telecommunications Carriers	51332	64	59
Telecommunications Resellers	51333	97	88
Satellite and Other Telecommunications	51334/9	10	11
Total	**5133**	**238**	**222**

[1] *The NAICS was jointly developed by Canada, the United States and Mexico, to reflect the industrial structure of the North American economy for reference year 1997. Reporting units are classified according to the activity in which they are primarily engaged and the main technology they employ. This system will allow for more comprehensive coverage of the industry than the previous 1980 Canadian Standard Industrial Classification (SIC). For further details about NAICS and for industry concordance between NAICS and the SIC at all levels, consult Statistics Canada publication 12-501-XPE, issued number 97001.*

The wired (wireline) industry comprises establishments primarily engaged in operating and maintaining switching and transmission facilities to provide direct communications via land lines, microwave, or a combination of land lines, microwave and satellite link-ups. Under the Telecommunications Act, companies classified to this industry own and operate facilities such as wires and cables for the transmission of intelligence. Service providers owning only switching apparatus are not considered to be carriers or to have facilities and instead would be classified as resellers.

The wireless telecommunications industry comprises establishments engaged in operating and maintaining switching and transmission facilities to provide direct communications via the airwaves, including cellular, personal communications services (PCS), enhanced specialized mobile radio (ESMR), and messaging (paging).

The telecommunications reseller industry comprises establishments primarily engaged in purchasing access and network capacity from owners and operators of telecommunications networks and reselling telecommunications services to their clients. These establishments do not operate or maintain a full network.

The satellite industry comprises establishments primarily engaged in operating, maintaining and providing access to fixed and mobile satellite telecommunications facilities for the transmission of voice, data, text, sound and full motion videos. Resellers of satellite communications are also included.

The 'Other telecommunications' industry includes companies providing telecommunications services not covered by the industries described above (e.g., telemetry, satellite tracking, radar stations operations).

The redesigned survey significantly expands coverage from previous years. Resellers, satellite telecommunications providers and paging companies (part of the wireless industry) were surveyed for the first time starting in 1997 and radio common carriers (dispatch telecommunications services) were added for the 1998 reference year. This latter change did not significantly add to the frame because most companies providing these services provide non-telecommunications services as well which tend to be more dominant and therefore do not qualify them to be included in this survey.

Survey Methodology

This report is based on data obtained from the Annual Survey of Telecommunications, a census of all telecommunications provisioning companies (whether publicly or privately controlled, including co-operatives, municipal corporations and foreign-owned companies operating in Canada). This survey is the result of a redesign process to reflect regulatory, market, technological and statistical innovations in the past two decades. The redesign process was undertaken in conjunction with an Advisory Group consisting of representatives from industry, academia and government. The new survey replaced the annual telephone survey, designed in 1971 and updated in 1987, which initially only surveyed the wireline industry.

Because the new survey was intended to cover all telecommunications activity as described in the new NAICS, a new expanded survey universe needed to be established. This was developed using Statistics Canada's Business Register and telecommunications survey programs, CRTC registration lists, Industry Canada licensing data bases, industry directories and trade publications. Several thousand companies were vetted: each company's activity was verified by telephone contact and is subject to ongoing regular updating.

The standard fiscal year for most telecommunications companies is the calendar year. Because of development of a new survey vehicle, survey management and data processing system, the surveys were not mailed out until the summer of 1999. Most companies mailed or faxed their responses, although data was collected from some small operators over the phone. Tax records were accessed for some companies which were not able to comply with reporting deadlines. Tabulations upon request were available in July of 2001 and the first preliminary release was made in October, 2001 for all NAICS industries via a Service Bulletin, 56-001-XIE.

In conducting the survey eight forms were used, a long or detailed version for larger companies and a short for smaller companies for wireline and wireless providers, and then one form for each of the reseller, satellite, RCC/paging and 'other' industries. Respondents were asked to complete all sections that were applicable to their operations. The questionnaires consisted of up to nine modules designed to complete a comprehensive picture of each company's operations: operating revenues, operating expenses, an income statement, a balance sheet, capital expenditures, employment, international trade (in services), network infrastructure and traffic. Companies with operations (employees) in more than one province or territory were provided with an appendix to record provincial detail.

Quality and Limitations of Data

Statistics Canada does not control the sources of data. The data supplied by the respondents relating to their finances and operating systems are considered to be of good accounting quality. Nearly 1500 communications (telephone calls, letters, faxes and e-mails) were recorded in the collection and follow-up editing of the survey questionnaires. Despite attempts to obtain complete responses, non-response, in whole or in part occurred. In these instances, tax records were used to supply the missing data and where this was not possible, data was imputed based on results from respondents that had similar operating characteristics to the firms that could not respond or based on related data provided by the respondent. Imputation was mainly undertaken for smaller respondents whose operations had a limited impact on aggregate results.

Most respondents reporting operations in more than one province or territory were able to provide some provincial disaggregations of their data, as requested. Provincial information on operating revenue and labour costs could also be found in the tax records, which were used to estimate other missing variables. The data-source-table (p. 39) shows how much of total industry activity for selected variables is attributable to survey or administrative sources or was imputed:

The highest incidence of imputation of data is found at very detailed levels of disagregation, e.g., residential – business splits, splits of labour expenses into detailed categories, provincial data, etc. – where applicable, this is noted in the appropriate table. Missing detail that is imputed is based on a company's previous response for the same variable, other related data provided by the respondent, responses from like companies and/or industry averages.

Annual data published prior to 1997 is not necessarily comparable to data presented in this publication due to changes in the industry classification to reflect the NAICS, as well as changes in the survey frame to expand survey coverage. Starting in 1997, Satellite and

Reseller industries, alternative and competitive access providers in the wireline industry, and new mobile telephony licensees and paging companies in the wireless industry, were included in the survey. In general, aggregate financial data and network infrastructure relating to access lines and wireless subscribers are consistent with concepts used in previous years.

Starting in 1998, intra-industry transactions (interconnection and contribtution) are reported on a gross basis rather than on a net basis. For this reason, total operating revenue and total operating expenses cannot be compared between 1998 and previous years. Net income, as well as operating revenues and expenses for many commodity activities or expense line items are not affected, nor are other variables relating to employment, capital expenditures, the income statement, traffic, international trade or infrastructure which can be meaningfully compared to last year's results.

Another problem regarding the publication of data is confidentiality. The smaller the geographic, industry or other characteristic considered, the more problematic the release of data potentially becomes owing to confidentiality concerns. This particularly effects the release of provincial detail, but it also impacts the release of data by NAICS industries, hence the grouping together of the Satellite industry (NAICS 51334) with those of 'Other' providers (NAICS 51339). Statistics Canada does not release data that may directly or residually disclose information pertaining to an individual respondent's operations without that respondent's written consent.

Cell description	Data Source (%)		
	Survey	Administrative	Imputed
Total LD revenues - National level	96.16	0.28	3.56
Total LD revenues - Provincial level	98.10	0.19	1.71
Total Operating revenues - National level	99.28	0.72	0.01
Total Op. revenues - Provincial lelvel	92.25	0.69	7.05
Paging subscribers - National level	94.88	-	5.12
Paging subs. - Provincial level	94.88	-	5.12
Total Operating expenses - National level	99.24	0.64	0.07
Total Operating expenses - Provincial level	49.00	0.63	50.37
Switching equipment (Assets) - National level	85.57	-	14.43
Total Assets - National level	97.01	0.38	2.6
Construction expenditures - National level	79.57	14.64	5.8
Const. exp'd - Provincial level	62.49	14.64	22.87
Total Employees - National level	95.34	0.07	4.59
Total Employees - Provincial level	95.34	0.05	4.62
Total Labour costs - National level	99.26	0.32	0.42
PSTN Access lines - Provincial level	79.42	0.32	20.26
PSTN Acc. lines - National level	99.90	-	0.10

Revisions

Revisions are made periodically to reflect corrections in the data. Revisions come about as more complete data becomes available or when respondents contact Statistics Canada to report errors in data previously reported.


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GLOSSARY OF TERMS

Alternative providers of long distance services. Non-incumbent (entrant) facilities-based and non-facilities-based (resellers) companies providing long distance telecommunications services.

Average labour costs per FTE employee (annualized). Total industry labour costs (wages, salaries and benefits paid to full-time and part-time employees) divided by the number of full-time equivalent employees.

Broadband access. High capacity two-way links between end-user and suppliers networks (central offices) such as hybrid-fibre-coaxial-cable systems, fibre-to-the-curb and fibre-to-the-home systems for residential users, with speed in one direction exceeding 1.544 Mbps.

Calling Features. Specialized software and database applications linked to telecommunications networks such as call waiting, call forwarding, caller identification, three way calling, speed dialing, etc.; call management services: call display, call return, call screen, call blocking, automatic call-back, etc.; and, tele-messaging: call answer, extension call answer, voice mail, voice menus, etc. These features are commonly offered on a per-use, or on fixed monthly charge basis. Calling features are also referred to as optional or enhanced local services).

Calls/messages, Outbound. Calling/messaging units originating in Canada and terminating in Canada, the United States, and overseas (foreign countries other than the United States).

Calls/messages, Incoming/Inbound. Calls/messages from either the United States or overseas (foreign countries other than the United States) and terminating in Canada.

Carrier services. Services provided to other telecommunication service providers (common carriers or resellers). This includes contribution, interconnection and other services provided to telecommunications service providers such as co-location, access to support structures, data base access, the recovery of start-up costs, other unbundled elements associated with the provision of dial tone, etc.

Cellular telecommunications. A telecommunications system that uses radio frequencies in the 800 MHz(megahertz) frequency band to provide mobile access to the PSTN (public switched telephone network). Cellular telecommunication can use either analogue or digital transmission technology over a multi-cell architecture.

Circuit. A facility consisting of the equipment and apparatus required to form a path suitable for the transmission of voice, text, audio, video or data communication between telephones and other communication equipment in the telecommunications network.

Connection. The one-time activation of telecommunications subscribers by connecting or reconnecting them to the PSTN. This does not include premises wiring.

Contribution. Payments (per minute or per circuit) derived from domestic and international long-distance telecommunications revenues to cover the revenue shortfall in the provision of local/access services.

Conversation minutes. The actual elapsed period in minutes a respondent s switches, circuits, lines or groups of lines are in use, or in the case of rebillers, the actual conversation time their customers use for calls and messages. Billing increments other than conversation time were converted to conversation minutes and reported by respondents accordingly.

Data and high speed services. This includes all wideband and broadband services (greater than 64 kbps), as well as narrowband packet-switched services. Wholesale internet services are not reported separately, and are included here.

Dispatch services. Non-switched services provided by radio common carrier (RCC) license holders for the provision of radio communications services (e.g., dispatch services for taxis or field service personnel, mobile data for police departments, etc.).

Employee. Any person drawing pay for services rendered or for paid absences and for whom an employer must complete a Revenue Canada T4 Supplementary Form. This includes full-time (work performed or paid absence of 30 or more hours in a typical work week) and part-time employees (work performed or paid absence of less than 30 hours a week), working owners, directors, partners and other officers of uncorporated businesses. It excludes owners or partners of unincorporated businesses, the self employed, unpaid family workers, persons outside Canada and casual workers for whom a T4 is not required.

Enhanced Specialized Mobile Radio (ESMR). A telecommunications system that uses radio frequencies primarily in the 800 MHz frequency band to provide mobile dispatch services and mobile access to the wireline PSTN.

ESMR uses digital transmission technology over a multi-cell network architecture. Its activity is reported as part of mobile telephony.

Establishment. A telecommunications service provider which is an operating entity capable of reporting basic elements of financial and network statistics, such as revenues, (wireless) operated.

Facilities-based operator. A telecommunications service provider that owns or operates any transmission facility (wire, cable, radio, optical, or other electromagnetic system, or any similar technical system) for the transmission of intelligence (signs, signals, writing, images, sounds or intelligence of any nature) between network termination points.

Fixed wireless. The use of radio frequencies for the provision of telecommunication services from a fixed place. This is used for access to the PSTN in remote areas or for alternative access to the PSTN in built-up areas. In these circumstance, fixed wireless is known as wireless local loop (WLL). Fixed wireless can use either digital or analogue transmission technology.

Fringe benefits. Employer contributions to pension plans, medical and other welfare plans, unemployment insurance, Canada and Quebec Pension Plans and workers compensation. Not included are non-taxable benefits provided by an employer such as premiums under a private health plan, recreational facilities, moving expenses and certain employee counselling services. Reported with **Labour costs**.

Full-time equivalent (FTE) employees. Full-time employees plus part-time employees converted to full-time equivalents. For this survey, this is calculated by dividing total part-time labour costs by the average full-time salary (full-time labour costs divided by full-time employees).

Interconnection. Services and facilities beyond the point of interconnection (such as switching and aggregation) to terminate traffic on behalf of an originating telecommunications service provider. This includes transiting or transport where provided pursuant to an interconnection tariff or agreement. Interconnection occurs between local exchange carriers (LEC s) and interexchange service providers (IXC s), including alternative providers of long distance services (APLDS), LEC s and wireless service providers (WSP s), and between domestic and foreign service providers.

Labour costs. The total remuneration paid to employees before deductions (the equivalent to the taxable employment income reported in Box 14 of the employees Revenue Canada T4 slips). This includes regular wages and salaries, overtime pay, paid leave, taxable allowances and benefits, gratuities, director's fees, vacation pay and special payments such as bonuses and commissions, retroactive and accumulated wage payments, termination/ severance payments, cost of living adjustments and working owner's draws, for expensed or capitalized labour. This also includes fringe benefits (see **Fringe benefits**). Readers should note that the amount reported as part of Operating expenses may differ from what is reported in the labour cost section, since the latter may include payments for labour that are capitalized.

Local switched telecommunications. The switching and transmission of voice, data, image and video messages over the PSTN within local calling areas.

Long-distance switched telecommunications. The switching and transmission of voice, data, image and video messages over the PSTN between local calling areas.

Messaging. An interactive telecommunications service that provides for information interchange among users by means of store-and-forward, electronic mail, or message-handling functions such as paging and narrowband PCS. Telephone answering services are not included.

Narrowband PCS. A telecommunication system that uses radio frequencies in the 900 MHz frequency band to provide one or two-way messaging services. This service uses digital transmission technology with radio frequency channels of 50 kHz (kilohertz) or less.

Net income before taxes. Total revenues (operating revenues plus non-operating revenues) less total expenses (operating expenses plus non-operating expenses).

Network access service. Primary connection to a company owned network for the purpose of telecommunications, regardless of the physical characteristics of the link. This includes individual and party line circuits; trunks connecting company facilities with switching devices located on customers premises; licensed radio-telephones; primary connections within networks (i.e., drops); WATS; and primary special services circuits.

Non-switched telecommunications. Dedicated communication lines or paths between specified points for the exclusive use of the lessees or owners typically not involving the PSTN for routing or switching the communication, e.g., private voice and data networks linking multiple business locations, dedicated links for transferring high-resolution video, etc.

Non-PSTN Lines. Telecommunications lines not connected to the PSTN, e.g., non-switched transport services such as low-speed data links for automated teller machines; private voice and data networks linking multiple business locations; and dedicated links for transferring high-resolution video. Analogue lines (voice, sub-voice) are typically used for alarm monitoring, traffic control, point-of-sale terminals, etc.

Operating profit. Total operating revenues less total operating expenses.

Packet switched telecommunications. Voice, data or video telecommunications that are divided into packets of fixed or variable length to be routed along non-reserved circuits to their destination. Each packet is addressed and numbered so it can be routed to its proper destination and reassembled in its proper sequence upon its arrival. These packets typically follow various routes depending on what is available at the time, which maximizes the network's operating efficiency.

Paging. A one-way telecommunications system that provides signaling or information transfer by such means as tone, tone-voice, tactile, or optical read-out. Analogue or digital transmission technology may be used.

Personal Communications Services (PCS). Mobile telecommunications using radio frequencies in the 1900 MHz frequency band connected access to the PSTN. PCS uses digital transmission technology over a multi-cell network architecture.

Public Switched Telephone Network (PSTN). The worldwide dial-up telephone network (switching, circuits, transmission and access services), or a portion of that network, used to establish voice and non-voice (text, audio, video or data) communications carried over a path initially established using normal telephone signaling and ordinary switched long-distance telephone circuits.

PSTN, Centrex access lines. A business telephone service offered by a service provider that permits direct inward dialing to a customer's extensions, transfer of incoming calls from one extension to another, and identification of extension telephones for billing of long-distance calls. Centrex is based on switching equipment usually located on the service providers premises.

PSTN, Individual access line. A subscriber line arranged to serve one main telephone. This includes PBX (private branch exchange) lines for businesses that have corresponding dedicated ports in the telephone exchange equipment.

PSTN, ISDN access line (Integrated Services Digital Network). A high capacity digital line the equivalent of 2 (BRA) or 23 (PRA) voice grade lines. These are counted as single lines despite their greater capacity. See voice-grade equivalents for a measure that is frequently used to take into account the enhanced capacity of these lines.

BRA (Basic Rate Access) access lines deliver two 64 kbps channels (B channels) and one 16 kbps channel (D channel) over a standard twisted-pair loop. The 64 kbps channels are capable of transmitting voice or data simultaneously while the D channel transmits call control messages and packet data at 9.6 kbps.

PRA (Primary Rate Access) lines can transmit at 1.544 Mbps (T1 trunk facility) consisting of 23 64 kbps B channels and one 64 kbps D channel. The B channels carry voice and data at 64 kbps while the D channel carries out-of-band signaling for one or more primary rate links.

PSTN, Other access lines. Wireline access lines not specified by any of the defined categories (individual, ISDN, public, centrex) such as WATS, Mobile access lines (this is not the same as mobile telephony subscribers).

PSTN, Party access line. A subscriber line arranged to serve two or more main telephones (e.g., residential party lines).

PSTN, Public telephones. Coin or card payphones including semi-public phones (payphones available to the public on a restricted basis owing to their location, e.g., those on private premises such as restaurants).

Reseller. A telecommunications service provider primarily engaged in purchasing access and network capacity from owners and operators of telecommunications networks and reselling telecommunications services to their clients. Resellers may own some network facilities such as switching equipment or apparatus to manipulate and control intelligence but do not operate or maintain a full network, nor own transmission facilities such as wire, cable, radio or optical systems.

Retail Internet services. The value reported in these quarterly reports represents only a small part of retail internet services in Canada, as most telecom companies have subsidiary companies or separate operating divisions (ISP's - Internet Service Providers), which are not telecommunications industries according to the North American Industry Classification System (NAICS).

Revenue per FTE employee. Total operating revenues per full-time equivalent employee.

Satellite, fixed. Communications via satellite transmission in which the terrestrial terminal points are fixed.

Satellite, mobile. Communications via satellite transmission in which the terrestrial terminal point can be mobile.

Subscriber. A customer of a wireline or wireless telecommunications service provider having unique access to the PSTN.

Switching equipment. Digital and analogue equipment and related software used to switch traffic over the PSTN. PBX s used as public switches are included whereas PC's used as switches are excluded.

Telecommunications. Any transmission, emission or reception of signs, signals writing images, sounds or intelligence of any nature, by wire, radio, visual or other electro-magnetic system.

Telecommunications, wireline (wired). Establishments primarily engaged in operating and maintaining switching and transmission facilities to provide direct communications via land lines, microwave, or a combination of land lines, microwave and satellite link-ups.

Telecommunications, wireless. Establishments engaged in operating and maintaining switching and transmission facilities to provide direct communications via the airwaves.

Telecommunications, other. Establishments primarily engaged in providing specialized telecommunications services such as satellite tracking, communications telemetry and radar station operation. The includes establishments primarily engaged in providing satellite terminal stations and associated facilities connected with one or more terrestrial systems and capable of transmitting telecommunications to, and receiving telecommunications from, satellite systems.

Teledensity. A measure of the number of phone lines (fixed access lines and mobile subscribers) per 100 of population. Between 40 and 50 lines per 100 of population indicates fairly good density. The OECD average was 48.9 in 1997. Teledensity is a measure of a country's economic development.

Telemetry. The measurement or recording of an activity from a distance by monitoring equipment connected to a telecommunications network.

Telephone. A compact unit containing the parts necessary for the transmission and reception of speech and for ringing or signalling the party called, and which can be interconnected to any other such unit in the general telephone network.

Terminal equipment. Equipment on customer premises connected to telecommunications lines: e.g., PBX's not used for public switching, telephone sets, routers, modems in customer sites, key systems, etc.

Voice services. Services generally associated with voice communication, narrowband or voice-grade communication, including voice telephony, fax, PSTN access, etc.

Voice-grade. A voice-grade access line can transmit voice or data at 64 kbps. They also transmit communications in an audio frequency range between 300 and 3000 Hz, typical of the human voice.

Voice-grade equivalents ('B channel' equivalents). Refer to how many voice-grade lines would be needed to provide the same or equivalent bandwidth to the line in question. ISDN BRA lines (bandwidth = 144 kbps) are the equivalent of 2 voice- grade lines while ISDN PRA (bandwidth = 1.544 Mbps**)** are the equivalent of 23 voice-grade lines.

Wide area telephone service (WATS). Service provided by a telephone company enabling a subscriber to dial certain distant exchanges on either a flat rate or a measured time charge basis.

Wideband. Telecommunications of bandwidth greater than 64 kbps up to and including 1.544 Mbps. A telecommunications path with 2 way capabilities with speed in at least one direction fitting the criteria described above.

Wireless Broadband Services. A multipoint telecommunications systems that use radio frequencies to allow the transmission and/or reception of information such as multimedia, data, and video over radio frequency channels of 50 kHz or greater (e.g., LMCS). Either digital or analogue transmission technology is used.

FOR FURTHER READING

Selected Publication from Statistics Canada

Title	Catalogue
Cable Television - *Annual,* Bilingual	56-205-XIB
Canadian Economic Observer - *Monthly,* Bilingual	11-010-XPB
Broadcasting and Telecommunications - *Service Bulletin,* Occasional, English or French	56-001-XIE
Detailed average household expenditures by size of area of residence of Canada (10 provinces) - Standard table (Family expenditures, household facilities and equipment) - *Annual*, Bilingual	62F0035XPB
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