



## SERVICE BULLETIN

# Quarterly Telecommunications Statistics 2<sup>nd</sup> Quarter, 2002

Science, Innovation and Electronic Information Division

Vol. 26, No. 2

November 2002

**All prices exclude sales tax**

Catalogue No. 56-002-XIE, is available on Internet for \$21.00 cdn per issue or \$40.00 cdn for subscription.

A Print-on-Demand service is also available for \$42.00 cdn per issue or \$80.00 cdn for subscription.

Frequency: Quarterly / ISSN 1488-8025

To order Statistics Canada publications please call our National toll-free line: 1 800 267-6677 or Internet: [order@statcan.ca](mailto:order@statcan.ca)

### HIGHLIGHTS

- ▶ In the second quarter 2002, the telecommunications industry contributed \$6.49 billion (1997 constant dollars) to Canadian gross domestic product (GDP), accounting for 2.6% of total economy GDP. This was 10.6% higher than the second quarter of last year (STC, CANSIM II Table 379-0018).
- ▶ Wireless operating profits surpassed \$300 million in the second quarter of 2002, an all-time high, after topping the \$200 million mark for the first time the previous quarter. The wireline sector remained profitable in the first half of 2002, but the 13.4% profit margin this quarter was well below the 19.5% average for the 1999-2001 period. It was also the first time that the wireline profit margin fell below the profit margin generated by the wireless sector.
- ▶ The improved financial performance of the wireless sector is largely the result of continued strong growth in subscriptions and revenues. The number of subscribers to wireless services was up 17.5% this quarter from the previous year, and revenues rose 14.9%. The decline in wireline revenues is likely the origin of reduced profitability. Revenues in that sector were down 2.3% in the second quarter compared with the previous year.
- ▶ Investments by the industry were down 17.7% in the second quarter from the previous year. Both the wireless and wireline segments of the industry reduced their capital expenditures. Capital spending accounted for 17.5% and 26.6% of wireline and wireless operating revenues respectively.
- ▶ Since the second quarter of 2001, the telecommunications industry has lost 1,884 full-time positions, a decrease of 2.2%. Of the 95,896 employees, there were 84,595 in full-time positions and 11,301 in part-time positions.
- ▶ Public-switched telephone network (PSTN) access is near parity with the population – there are 99.7 voice grade access paths per 100 persons. The 31.2 million voice-grade access paths consist of over 11.1 million mobile access paths (cellular subscribers) and 20.0 million fixed access paths (19.3 million single access lines and 99,836 lines with multiple access). Fixed access continued to decline, however, into the second quarter of 2002, down 1.0% from last year's level.

Published by authority of the Minister responsible for Statistics Canada.

© Minister of Industry 2002. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopy, recording or otherwise without prior written permission from Licence Services, Marketing Division, Statistics Canada, Ottawa, Ontario, Canada K1A 0T6.



## Symbols

The following standard symbols are used in Statistics Canada publications:

.	not available for any reference period
..	not available for a specific reference period
...	not applicable
P	preliminary
r	revised figures
x	suppressed to meet the confidentiality requirements of the Statistics Act
E	use with caution
F	too unreliable to be published

## Abbreviations

n.e.c.	not elsewhere classified
FTE	Full-time equivalents
VGE	Voice-grade equivalents

## North American Industry Classification System - NAICS (catalogue 12-501-XPE)

5133	Telecommunications
51331	Wired Telecommunications
51332	Wireless Telecommunications
51333	Telecommunication Resellers
51334	Satellite Telecommunications (including Satellite Resellers)
51339	Other Telecommunications Services

## ANALYTICAL OVERVIEW

### National and Industry Indicators

The telecommunications industry's **operating revenues** were \$8.19 billion in the second quarter of 2002 – an increase of 1.3% over the second quarter of 2001. Facilities-based wireline telecommunications services accounted for 73.2% of total industry operating revenues, while wireless, resellers, satellite, and other services accounted for 26.8% of the second quarter total (Figure 1). The share of wireline carriers vis-à-vis wireless service providers and resellers continues to be dominant, but has gradually declined from its share of 80.0% in the first quarter of 1999.

**Operating revenues in the wireline industry** totalled \$5.99 billion in the second quarter, down 2.3% from the previous year. Local services (\$1.72 billion) continued to represent the largest share (28.6%) of wireline operating revenues, followed by long distance services (\$1.10 billion / 18.4% of the total) and carrier services (\$669 million / 11.2% of the total). Data, high speed, non-switched and other services (i.e. rentals, retail Internet, sale of goods) accounted for 5.9% of second quarter wireline operating revenues. This was the third year-over-year decline in revenues in the last four quarters. The effects of competition on pricing, the loss of lines as a result of increased high speed Internet penetration, and the apparent substitution of fixed access by wireless access underlie this phenomenon.

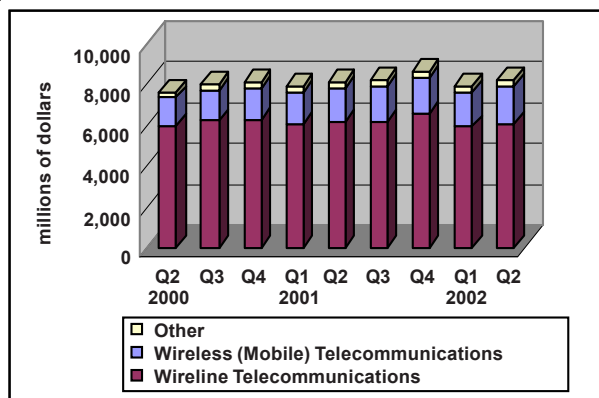
**Operating revenues in the wireless industry** have been far more buoyant than in the wireline industry. At \$1.87 billion this quarter, operating revenues are up 14.9% from what was reported one year ago. As with wireline carriers, local services are the wireless industry's major source of revenues, but account for a greater share of total operating revenues (\$1.12 billion / 59.8%).

**Operating profit** was \$1.09 billion in the second quarter, or 13.3% of operating revenues. This was down 17.3% from last year. Returns varied widely, however, depending on the telecommunications industry. The operating profit for wireline carriers dropped to 13.4 cents on each revenue dollar, well below the 19.5 average for the 1999-2001 period. Wireless carriers reached a profit of nearly 17 cents on each revenue dollar, a performance that is in sharp contrast to the previous three years when the combined operating profits for the 1999-2001 period were \$22.6 million or less than 1.0% of wireless operating revenues. The reseller, satellite and other industries (NAICS 51333, 4 and 9, respectively) had an estimated operating loss amounting to 8 cents on each dollar earned this quarter.

Figure 1.

The share of wireline carriers vis-à-vis wireless service providers and resellers has been declining slowly over the last few years.

(Revenues \$8.19 billion)

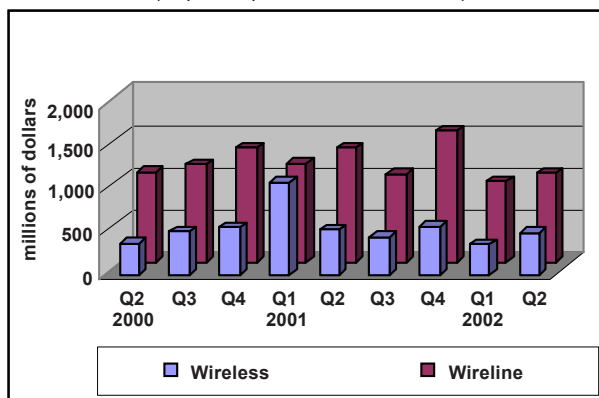


Source: Quarterly Telecommunications Statistics.

Figure 2.

Investments by the industry were down 17.7% in the second quarter of 2002 from the previous year. Both the wireless and wireline sectors of the industry reduced their spending.

(Capital expenditures \$1.55 billion)



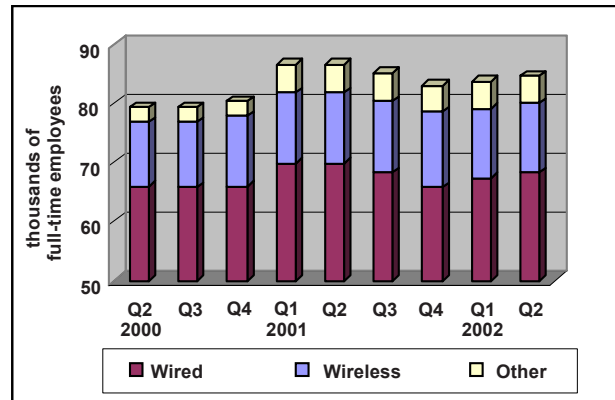
Source: Quarterly Telecommunications Statistics.

**Capital expenditures** for the telecommunications industry reached \$1.55 billion, still 17.7% lower than what was reported in the second quarter of last year. The wireline and wireless industries had capital outlays of \$1.05 billion and \$497 million, respectively, representing 17.5% and 26.6% of second quarter operating revenues (Figure 2). This was the third year-over-year decline of capital expenditures in the last four quarters, supporting the proposition that the industry has sufficient network capacity to meet the current and anticipated demand for services.

Figure 3.

Full-time employment in the telecommunications industries has decreased by 2.2% since second quarter, 2001

There were 84,595 **full-time employees** this quarter. This represents a 2.2% decrease from the second quarter of 2001 (a loss of 1,884 full-time employees) (Figure 3). Since the second quarter last year, employment in the wireline industry decreased by 1,620 full-time positions, while the wireless industry lost 160 full-time employees. The “other” telecommunications industries lost 104 full-time employees over the same period. **Average annual labour costs** (wages, salaries and benefits) per employee (full-time equivalent) were \$72,685 for the wireline industry and \$65,743 for the wireless industry.



Source: Quarterly Telecommunications Statistics.

Public-switched telephone network (PSTN) **wireline access** was just over 19.3 million lines at the end of the second quarter, a decrease of 0.5% from last year’s level. The quarter over quarter declines, reflected in each quarter last year, are continuing in the second quarter of 2002. This new phenomenon may be the early signs of wireless substitution for wireline services, or growing cable penetration in the market for Internet access. Nonetheless, local wireline revenue per PSTN line has increased over last year, largely due to basic services price increases. Residential lines accounted for 65.8% of the total and business lines represented 34.2% of PSTN lines (Text Table 1).

Each **ISDN (Integrated Service Digital Network) line** is capable of providing multiple access paths to the PSTN, based on their enhanced bandwidth. With ISDN lines converted to their voice-grade bandwidth equivalents (ISDN BRA = 2 lines, ISDN PRA = 23 lines), total fixed access this quarter was just over 20.0 million lines, a 1.0% decrease from what was reported one year ago.

Text Table 1. PSTN Network Infrastructure - Wired Access

	Second Quarter, 2002		
PSTN Access	Residential	Business	Total
<b>Wired Access Lines (NAICS 51331)</b>			
Individual lines	12,444,052	2,832,965	15,277,017
Party lines	68,028	1,285	69,313
ISDN BRA	97	70,550	70,647
ISDN PRA	...	29,189	29,189
Public telephones	...	165,834	165,834
Centrex	...	2,612,085	2,612,085
Official lines	...	...	382,300
Other	-	393,257	393,257
Undercoverage estimate	202,627	124,246	326,873
<b>Total Wired Access Lines</b>	<b>12,714,804 (65.8%)</b>	<b>6,612,028 (34.2%)</b>	<b>19,326,515 (100.0%)</b>
<b>Total voice-grade equivalents</b>	<b>12,714,901 (63.4%)</b>	<b>7,324,736 (36.6%)</b>	<b>20,039,320 (100.0%)</b>

Source: Quarterly Telecommunications Statistics, 2<sup>nd</sup> Quarter, 2002.

Second quarter mobile telephony subscribers were up 17.5% from last year. At quarter end, there were over 11.1 million subscribers, more than one in every three Canadians. Since second quarter 2001, however, wireless service providers have seen local revenue per subscriber decline, as many new subscribers may be taking advantage of the less profitable pre-paid mobile phone packages. Digital wireless access stands at 68.2%, representing just over 7.6 million mobile subscribers (Text Table 2, Figure 4). This is in contrast to wireline access, which is nearly all digital. The share of digital mobile subscribers, however, has been growing quickly over the last few years.

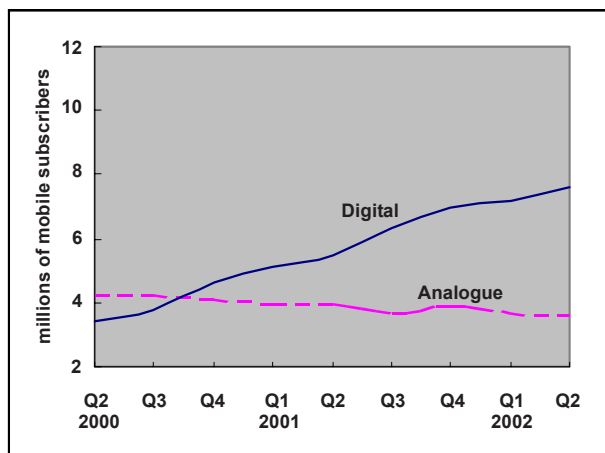
**Teledensity** measures the penetration of telecommunications services in a given population. For the wireline and wireless industries, there were 64.0 and 35.7 access paths (VGE) per 100 inhabitants, respectively. Total teledensity per 100 inhabitants was 99.7 in the second quarter, up 3.7% from last year's second quarter figure (Text Table 3).

**Paging subscriptions** have been decreasing over the last year, perhaps due to the strong growth in cellular telecommunications, considered to be a substitute for paging. There were just under 1.7 million pagers in service in the second quarter, down from 1.9 million subscribers in the second quarter of 2001 (-9.8%).

Long distance **traffic** is nearly completely undertaken via wireline access, which reached 13.5 billion minutes this quarter. About 10.1% of total wireline long distance minutes are originating from points outside Canada (Figure 6). Mobile telephony is primarily used for local communication. Total billed minutes rose substantially since the second quarter of 2001 (29.4%) to just over 8.1 billion. Not only is the number of subscribers growing, but billed minutes per subscriber are also rising, suggesting that mobile customers are spending more time on the phone.

Readers should note that wherever possible, survey undercoverage estimates have been included in the industry tables. Please see the *Concepts and Methodology* section for further detail.

Figure 4.



Source: Quarterly Telecommunications Statistics.

Text Table 2. PSTN Network Infrastructure - Mobile Access

PSTN Access	Second Quarter, 2002
<b>Mobile Access (NAICS 51332)</b>	
Digital	7,620,377
Analogue	3,551,675
<b>Total Mobile Access</b>	<b>11,172,052</b>

Source: Quarterly Telecommunications Statistics, 2<sup>nd</sup> Quarter, 2002.

Text Table 3. PSTN Network Infrastructure - Total Access

<b>Teledensity</b>	
Total PSTN Access Paths	30,498,567
Total PSTN Access Paths (VGE)	31,211,372
Wired Access (VGE) per 100 inhabitants	64.0
Wireless Access (VGE) per 100 inhabitants	35.7
<b>Total PSTN Access VGE per 100 inhabitants</b>	<b>99.7</b>

Source: Quarterly Telecommunications Statistics, 2<sup>nd</sup> Quarter, 2002.

ELECTRONIC PUBLICATIONS AVAILABLE AT  
**[www.statcan.ca](http://www.statcan.ca)**



**Telecommunications Industry  
(NAICS 5133)**

**Summary Tables**

**TABLE 1. Summary of Operating Indicators, NAICS 5133, Quarterly, 2002**

	First Quarter		Second Quarter		Third Quarter		Fourth Quarter		Year to date	
		02/01 %		02/01 %		02/01 %		02/01 %		02/01 %
<b>Financial indicators (\$000)</b>										
Operating revenues	7,916,859	1.0	8,193,519	1.3					16,110,378	1.1
Operating expenses	6,638,706	(3.6)	7,107,845	4.9					13,746,551	0.6
Operating profit	1,278,153	34.2	1,085,674	(17.3)					2,363,827	4.4
% of operating revenues	16.1	33.0	13.3	(18.3)					14.7	3.2
Capital expenditures <sup>1</sup>	1,309,984	(41.8)	1,547,881	(17.7)					2,857,865	(30.8)
<b>Employment (persons)</b>										
Full-time	83,568	(3.3)	84,595	(2.2)					...	...
Part-time	<u>11,925</u>		<u>11,301</u>						...	...
Total	95,493		95,896						...	...
% of national industrial employment <sup>2</sup>	0.750		0.718						...	...
Total (full-time equivalents - FTE)	88,166		89,481						...	...
<b>Labour costs (\$000)</b>										
Average Labour costs (\$)	1,548,029		1,605,325						3,153,354	
per FTE employee (annualized)	72,880		72,307						...	...
<b>PSTN access paths (fixed and mobile)</b>										
Total	30,424,141	6.4	30,498,567	5.5					...	...
Total (voice-grade equivalents - VGE)	31,154,052	5.9	31,211,372	4.9					...	...
Teledensity (VGE per 100 inhabitants)	99.9	4.9	99.7	3.7					...	...

Due to rounding, figures may not sum exactly to totals.

<sup>1</sup> Comprises 51331 (Wireline) and 51332 (Wireless) only.

<sup>2</sup> Survey of Employment, Payrolls and Hours (SEPH). The target population is composed of all employers in Canada, except those in agriculture, fishing and trapping, private households services, religious organizations and military personnel of defence services. For further information see Statistics Canada Catalogue No. 72-002-XIB.



**TABLE 2A. Summary of Operating Indicators, (NAICS 51331, 51332, 51333, 4, 9), First Quarter, 2002**

NAICS industries	51331	51332	51333, 4, 9	5133
thousands of dollars				
<b>Operating revenues</b>				
Telecommunications operating revenues	4,824,052	1,612,386	..	..
Other operating revenues <sup>1</sup>	899,820	74,485	..	..
Undercoverage estimate	<u>151,477</u>	<u>34,695</u>	<u>319,943</u>	<u>506,116</u>
Total	5,875,349	1,721,566	319,943	7,916,859
% of NAICS 5133	74.2	21.7	4.0	100.0
<b>Operating expenses</b>				
Telecommunications operating expenses	4,353,742	1,347,985	..	..
Other operating expenses	244,484	132,792	..	..
Undercoverage estimate	<u>197,868</u>	<u>27,451</u>	<u>334,383</u>	<u>559,703</u>
Total	4,796,094	1,508,228	334,383	6,638,706
% of NAICS 5133	72.2	22.7	5.0	100.0
<b>Operating profit</b>				
	<b>1,079,255</b>	<b>213,338</b>	<b>(14,440)</b>	<b>1,278,153</b>
% of operating revenues	18.4	12.4	(4.5)	16.1
<b>Non-operating revenues and expenses (survey units only)</b>				
Non-operating revenues	81,574	X	..	..
Non-operating expenses				
Interest expenses	437,703	93,114	..	..
Other	<u>36,549</u>	<u>X</u>	..	..
Total	474,252	X	..	..
<b>Net income before taxes</b>				
	<b>686,577</b>	<b>9,386</b>	..	..
EBITDA <sup>2</sup>	2,069,492	551,308	..	..
<b>Capital expenditures</b>				
	946,153	363,831	..	..
% of operating revenues	16.1	21.1	..	..
<b>Employment (persons)</b>				
Full-time	67,387	11,607	4,574	83,568
Part-time	<u>9,274</u>	<u>2,363</u>	<u>288</u>	<u>11,925</u>
Total	76,661	13,970	4,862	95,493
% of national industrial employment	0.602	0.110	0.038	0.750
Total (full-time equivalents - FTE)	71,295	12,206	4,665	84,963
<b>Labour costs</b>				
Full-time	1,205,599	194,123	67,042	1,466,764
Part-time	<u>69,909</u>	<u>10,017</u>	<u>1,339</u>	<u>81,265</u>
Total	1,275,508	204,139	68,382	1,548,029
Average Labour costs (\$) per FTE employee (annualized)	71,563	66,898	..	72,880

<sup>1</sup> Other includes: terminal equipment rentals; sale of telecommunications goods; directory services; retail internet access; installations; customer repairs and maintenance, etc.

<sup>2</sup> EBITDA - Earnings Before Interest, Taxes, Depreciation and Amortization.

X - Confidential to meet secrecy requirements of the Statistics Act.

**TABLE 2B. Summary of Operating Indicators, (NAICS 51331, 51332, 51333, 4, 9), Second Quarter, 2002**

NAICS industries	51331	51332	51333, 4, 9	5133
thousands of dollars				
<b>Operating revenues</b>				
Telecommunications operating revenues	4,883,010	1,710,738	..	..
Other operating revenues <sup>1</sup>	956,071	120,368	..	..
Undercoverage estimate	<u>154,526</u>	<u>37,662</u>	<u>331,144</u>	<u>523,332</u>
Total	5,993,607	1,868,768	331,144	8,193,519
% of NAICS 5133	73.2	22.8	4.0	100.0
<b>Operating expenses</b>				
Telecommunications operating expenses	4,690,664	1,364,278	..	..
Other operating expenses	285,950	166,478	..	..
Undercoverage estimate	<u>214,151</u>	<u>28,378</u>	<u>357,946</u>	<u>600,475</u>
Total	5,190,765	1,559,134	357,946	7,107,845
% of NAICS 5133	73.0	21.9	5.0	100.0
<b>Operating profit</b>				
	<b>802,842</b>	<b>309,634</b>	<b>(26,802)</b>	<b>1,085,674</b>
% of operating revenues	13.4	16.6	(8.1)	13.3
<b>Non-operating revenues and expenses (survey units only)</b>				
Non-operating revenues	48,268	X	..	..
Non-operating expenses				
Interest expenses	387,470	84,561	..	..
Other	<u>1,318,820</u>	<u>X</u>	..	..
Total	1,706,290	X	..	..
<b>Net income before taxes</b>				
	<b>(855,180)</b>	<b>141,371</b>	<b>..</b>	<b>..</b>
EBITDA <sup>2</sup>	1,808,388	654,066	..	..
<b>Capital expenditures</b>				
	1,050,699	497,181	..	..
% of operating revenues	17.5	26.6	..	..
<b>Employment (persons)</b>				
Full-time	68,185	11,780	4,630	84,595
Part-time	<u>9,273</u>	<u>1,754</u>	<u>273</u>	<u>11,301</u>
Total	77,458	13,534	4,903	95,896
% of national industrial employment	0.580	0.101	0.037	0.718
Total (full-time equivalents - FTE)	72,044	12,710	4,726	89,481
<b>Labour costs</b>				
Full-time	1,257,950	190,343	69,364	1,517,657
Part-time	<u>71,193</u>	<u>15,031</u>	<u>1,445</u>	<u>87,668</u>
Total	1,329,143	205,374	70,809	1,605,325
Average Labour costs (\$) per FTE employee (annualized)	72,685	65,743	..	72,307

<sup>1</sup> Other includes: terminal equipment rentals; sale of telecommunications goods; directory services; retail internet access; installations; customer repairs and maintenance, etc.

<sup>2</sup> EBITDA - Earnings Before Interest, Taxes, Depreciation and Amortization.

X - Confidential to meet secrecy requirements of the Statistics Act.

**Table 2C. Summary of Operating Indicators, (NAICS 51331, 51332, 51333, 4, 9), Year to Date, 2002**

NAICS industries	51331	51332	51333, 4, 9	5133
thousands of dollars				
<b>Operating revenues</b>				
Telecommunications operating revenues	9,707,062	3,323,124	..	..
Other operating revenues <sup>1</sup>	1,855,891	194,853	..	..
Undercoverage estimate	<u>306,004</u>	<u>72,357</u>	<u>651,087</u>	<u>1,029,448</u>
Total	11,868,957	3,590,334	651,087	16,110,378
% of NAICS 5133	73.7	22.3	4.0	100.0
<b>Operating expenses</b>				
Telecommunications operating expenses	9,044,406	2,712,263	..	..
Other operating expenses	530,434	299,270	..	..
Undercoverage estimate	<u>412,019</u>	<u>55,829</u>	<u>692,329</u>	<u>1,160,178</u>
Total	9,986,859	3,067,362	692,329	13,746,551
% of NAICS 5133	72.6	22.3	5.0	100.0
<b>Operating profit</b>				
	<b>1,882,098</b>	<b>522,971</b>	<b>(41,242)</b>	<b>2,363,827</b>
% of operating revenues	15.9	14.6	(6.3)	14.7
<b>Non-operating revenues and expenses (survey units only)</b>				
Non-operating revenues	129,842	X	..	..
Non-operating expenses				
Interest expenses	825,173	177,675	..	..
Other	<u>1,355,369</u>	<u>X</u>	..	..
Total	2,180,542	X	..	..
<b>Net income before taxes</b>				
	<b>(168,602)</b>	<b>97,473</b>	<b>..</b>	<b>..</b>
EBITDA <sup>2</sup>	3,877,881	1,205,373	..	..
<b>Capital expenditures</b>				
	1,996,852	861,012	..	..
% of operating revenues	16.8	24.0	..	..
<b>Employment (persons)</b>				
Full-time	68,185	11,780	4,630	84,595
Part-time	<u>9,273</u>	<u>1,754</u>	<u>273</u>	<u>11,301</u>
Total	77,458	13,534	4,903	95,896
% of national industrial employment	0.580	0.101	0.037	0.718
Total (full-time equivalents - FTE)	72,044	12,710	4,726	89,481
<b>Labour costs</b>				
Full-time	2,463,549	384,466	136,406	2,984,421
Part-time	<u>141,101</u>	<u>25,047</u>	<u>2,784</u>	<u>168,933</u>
Total	2,604,650	409,513	139,191	3,153,354
Average Labour costs (\$) per FTE employee (annualized)	72,685	65,743	..	72,307

<sup>1</sup> Other includes: terminal equipment rentals; sale of telecommunications goods; directory services; retail internet access; installations; customer repairs and maintenance, etc.

<sup>2</sup> EBITDA - Earnings Before Interest, Taxes, Depreciation and Amortization.

X - Confidential to meet secrecy requirements of the Statistics Act.

**TABLE 3. Summary of Analytical Indicators, NAICS 51331, 51332, Quarterly, 2002**

NAICS industries	51331				51332			
	I	II	III	IV	I	II	III	IV
<b>Financial</b>								
Operating revenue per capita (\$)	188.40	191.40			55.20	59.68		
Operating profit (% of operating revenues)	18.4	13.4			12.4	16.6		
Average revenue per long distance minute (cents) <sup>1</sup>	9.11	9.04			15.06	14.68		
Average revenue per local minute (cents)	...	...			16.34	15.20		
Capital expenditures per capita (\$)	30.34	33.55			11.67	15.88		
Capital expenditures (% of operating revenues)	16.1	17.5			21.1	26.6		
<b>Employment/Labour</b>								
Industry employment as a % of national industrial employment <sup>2</sup>	0.602	0.580			0.110	0.101		
Revenue per FTE employee (\$)	82,410	83,194			141,044	147,029		
PSTN access paths per FTE employee <sup>3</sup>	278	273			898	879		
Average Labour costs (\$) per FTE employee (annualized)	71,563	72,685			66,898	65,743		
Labour costs as a % of operating revenues	21.7	22.2			11.9	11.0		
<b>Teledensity (VGE)</b>								
PSTN access paths per 100 inhabitants	64.8	64.0			35.1	35.7		
<b>Traffic<sup>1,4</sup></b>								
Local minutes per subscriber	...	...			595	662		
Local minutes per capita	...	...			208	235		
Long distance minutes per access path (VGE) <sup>3</sup>	696	701			64	72		
Long distance minutes per capita	435	432			22	25		

<sup>1</sup> Long distance minutes include domestic and international calls originating in Canada and toll-free calls for wireline carriers, and billed minutes for wireless carriers.

<sup>2</sup> Survey of Employment, Payrolls and Hours (SEPH). The target population is composed of all employers in Canada, except those in agriculture, fishing and trapping, trapping, private households services, religious organizations and military personnel of defence services. For further information see Statistics Canada Catalogue No. 72-002-XIB.

<sup>3</sup> Excludes Official lines

<sup>4</sup> Calculations do not include undercoverage estimates.

**Wired Telecommunications Carriers  
(NAICS 51331)**

**Tables and Graphs**

**TABLE 4. Operating Revenues, NAICS 51331, Quarterly, 2002**

Wired Telecommunications (NAICS 51331)	First Quarter		Second Quarter		Third Quarter		Fourth Quarter		Year to date	
	\$000	02/01 %	\$000	02/01 %	\$000	02/01 %	\$000	02/01 %	\$000	02/01 %
<b>Telecommunications Operating revenues</b>										
Carrier services										
Contribution	82,627		75,184						157,811	
Interconnection	435,874		424,277						860,151	
Circuit rentals	39,753		37,482						77,235	
Other	<u>139,697</u>		<u>132,339</u>						<u>272,036</u>	
Total	697,951	(4.9)	669,282	(22.5)					1,367,233	(14.4)
Voice services										
Local telephony	1,698,750	(0.9)	1,717,114	(1.7)					3,415,864	(1.3)
Long distance telephony	1,111,728	(12.6)	1,101,295	(1.3)					2,213,023	(7.3)
Calling features	327,496	12.6	333,957	12.7					661,453	12.6
Connection	<u>79,007</u>	(8.4)	<u>94,270</u>	(12.7)					<u>173,277</u>	(10.8)
Total	3,216,981	(4.4)	3,246,636	(0.6)					6,463,617	(2.5)
Data and high speed services										
Narrowband packet-switched	235,477		250,442						485,919	
High speed switched <sup>1</sup>	<u>100,522</u>		<u>105,633</u>						<u>206,155</u>	
Total	335,999	(35.3)	356,075	(34.6)					692,074	(35.0)
Non-switched services (private lines)										
Narrowband	290,219		284,450						574,669	
High speed	<u>45,870</u>		<u>44,841</u>						<u>90,711</u>	
Total	336,089	16.7	329,291	(3.6)					665,380	5.6
Other telecommunications services	<u>237,032</u>		<u>281,726</u>						<u>518,758</u>	
Total	4,824,052	(6.8)	4,883,010	(7.0)					9,707,062	(6.9)
<b>Other Operating revenues</b>										
Terminal equipment rentals	61,580		62,409						123,989	
Sale of telecommunications goods	100,959		114,285						215,244	
Directory services	9,599		8,552						18,151	
Retail Internet services	320,212		396,167						716,379	
Other services n.e.c.	<u>407,470</u>		<u>374,658</u>						<u>782,128</u>	
Total	899,820	29.8	956,071	31.6					1,855,891	30.7
Undercoverage estimate	<u>151,477</u>	...	<u>154,526</u>	...					<u>306,004</u>	...
<b>Total Operating revenues</b>	<b>5,875,349</b>	<b>(2.5)</b>	<b>5,993,607</b>	<b>(2.3)</b>					<b>11,868,957</b>	<b>(2.4)</b>

<sup>1</sup> Widesband and broadband circuit- and packet-switched services.

**TABLE 5. Operating Expenses, NAICS 51331, Quarterly, 2002**

Wired Telecommunications (NAICS 51331)	First Quarter		Second Quarter		Third Quarter		Fourth Quarter		Year to date	
	\$000	02/01 %	\$000	02/01 %	\$000	02/01 %	\$000	02/01 %	\$000	02/01 %
<b>Telecommunications Operating expenses</b>										
Carrier services										
Contribution	179,657		156,936						336,593	
Interconnection	553,700		546,143						1,099,843	
Circuit rentals	180,146		164,214						344,360	
Other	<u>251,755</u>		<u>195,505</u>						<u>447,260</u>	
Total	1,165,258	(1.9)	1,062,798	(19.5)					2,228,056	(11.2)
Labour expenses	1,151,861	2.7	1,160,115	10.8					2,311,976	6.6
Depreciation	990,237	(1.9)	1,005,546	(2.5)					1,995,783	(2.2)
Other	<u>1,046,386</u>		<u>1,462,205</u>						<u>2,508,591</u>	
Total	4,353,742	(4.5)	4,690,664	3.8					9,044,406	(0.4)
<b>Other Operating expenses</b>	244,484	21.7	285,950	34.4					530,434	28.2
Undercoverage estimate	<u>197,868</u>	...	<u>214,151</u>	...					<u>412,019</u>	...
<b>Total Operating expenses</b>	<b>4,796,094</b>	<b>(3.4)</b>	<b>5,190,765</b>	<b>5.1</b>					<b>9,986,859</b>	<b>0.9</b>

**TABLE 6. Financial and Performance Indicators, NAICS 51331, Quarterly, 2002**

Wired Telecommunications (NAICS 51331)	First Quarter		Second Quarter		Third Quarter		Fourth Quarter		Year to date	
	\$000	02/01 %	\$000	02/01 %	\$000	02/01 %	\$000	02/01 %	\$000	02/01 %
Operating revenues	5,875,349	(2.5)	5,993,607	(2.3)					11,868,957	(2.4)
Operating expenses	4,796,094	(3.4)	5,190,765	5.1					9,986,859	0.9
<b>Operating profit</b>	<b>1,079,255</b>	<b>1.7</b>	<b>802,842</b>	<b>(33.0)</b>					<b>1,882,098</b>	<b>(16.7)</b>
% of operating revenues	18.4	4.4	13.4	(31.4)					15.9	(14.6)
EBITDA <sup>1</sup>	2,069,492	(0.1)	1,808,388	(18.9)					3,877,881	(9.8)
<b>Revenue performance<sup>2</sup> (\$)</b>										
Operating revenue per capita	188.40	(3.5)	191.40	(3.4)					379.80	(3.5)
Voice services revenue per PSTN line <sup>3</sup>	165.14	(1.8)	167.96	2.3					333.10	0.2
Local revenue per PSTN line <sup>3</sup>	87.20	1.7	88.83	1.2					176.03	1.5
Long distance revenue per PSTN line <sup>3</sup>	57.07	(10.3)	56.97	1.7					114.04	(4.7)
Average revenue per										
long distance minute (cents)	9.11	(15.5)	9.04	(6.4)					9.08	(11.2)
Advanced services ratio <sup>4</sup> (%)	22.3	(11.9)	23.0	(14.5)					22.6	(13.4)

<sup>1</sup> EBITDA - Earnings Before Interest, Taxes, Depreciation and Amortization.<sup>2</sup> Calculations do not include undercoverage estimates, and where applicable are based on voice-grade equivalent (VGE) PSTN lines.<sup>3</sup> Excludes Official telephone lines<sup>4</sup> Ratio of operating revenues from new services compared to traditional telecommunications services (%).

**TABLE 7. Employment and Labour Costs, NAICS 51331, Quarterly, 2002**

Wired Telecommunications (NAICS 51331)	First Quarter		Second Quarter		Third Quarter		Fourth Quarter		Year to date	
		02/01 %		02/01 %		02/01 %		02/01 %		02/01 %
<b>Employment (persons)</b>										
Full-time	67,387	(3.5)	68,185	(2.3)					...	...
Part-time	<u>9,274</u>	(6.7)	<u>9,273</u>	(11.4)					...	...
Total	76,661	(3.9)	77,458	(3.5)					...	...
% of national industrial employment	0.602		0.580						...	...
Total (full-time equivalents - FTE)	71,295	(4.6)	72,044	(3.8)					...	...
Revenue (\$) per FTE employee	82,410		83,194						...	...
<b>Labour costs<sup>1</sup></b>										
Full-time	1,205,599	5.3	1,257,950	19.0					2,463,549	11.8
Part-time	<u>69,909</u>	(13.5)	<u>71,193</u>	(8.1)					<u>141,101</u>	(10.9)
Total	1,275,508	4.0	1,329,143	17.1					2,604,650	10.3
Average Labour costs (\$) per FTE employee (annualized)	71,563	9.1	72,685	15.2					...	...

<sup>1</sup> Includes capitalized labour expenditures.

**TABLE 8. Capital Expenditures, NAICS 51331, Quarterly, 2002**

Wired Telecommunications (NAICS 51331)	First Quarter		Second Quarter		Third Quarter		Fourth Quarter		Year to date	
	\$000	02/01 %	\$000	02/01 %	\$000	02/01 %	\$000	02/01 %	\$000	02/01 %
<b>Capital expenditures</b>	946,153	(18.5)	1,050,699	(22.0)					1,996,852	(20.4)
% of operating revenues	16.1	(16.4)	17.5	(20.2)					16.8	(18.5)
per capita (\$)	30.34	(19.4)	33.55	(22.9)					64.03	(21.2)



**TABLE 9. Network Infrastructure, NAICS 51331, Quarterly, 2002**

Wired Telecommunications (NAICS 51331)	First Quarter		Second Quarter		Third Quarter		Fourth Quarter	
		02/01 %		02/01 %		02/01 %		02/01 %
<b>Network infrastructure (access)</b>								
<b>PSTN access lines</b>								
Individual lines (includes PBX)	15,390,477	(2.3)	15,277,017	(2.4)				
Party lines	72,292	(15.6)	69,313	(16.1)				
ISDN BRA	72,331	(13.2)	70,647	(12.8)				
ISDN PRA	29,890	(10.2)	29,189	(13.3)				
Public telephones	167,205	(1.8)	165,834	(3.8)				
Centrex	2,585,761	2.9	2,612,085	3.4				
Official lines	389,295	...	382,300	...				
Other (includes mobile and WATS)	432,895	(20.3)	393,257	(26.9)				
Undercoverage estimate	<u>326,873</u>	...	<u>326,873</u>	...				
<b>Total</b>	<b>19,467,019</b>	<b>(0.2)</b>	<b>19,326,515</b>	<b>(0.5)</b>				
Residential (%)	65.8		65.8					
Business (%)	34.2		34.2					
<b>Total PSTN voice-grade equivalents (VGE)</b>	<b>20,196,930</b>	<b>(0.6)</b>	<b>20,039,320</b>	<b>(1.0)</b>				
Residential (%)	63.4		63.4					
Business (%)	36.6		36.6					
PSTN (VGE) per 100 inhabitants	64.8	(1.5)	64.0	(2.1)				
Residential access lines (VGE) per 100 households	107		106					
Business access lines (VGE) per 100 employed persons <sup>1</sup>	58.0		54.9					
PSTN access paths (VGE) per FTE employee <sup>2</sup>	278		273					
<b>Non-PSTN lines<sup>3</sup></b>								
Digital	285,533		298,759					
Analogue	<u>25,665</u>		<u>25,218</u>					
<b>Total</b>	<b>311,198</b>		<b>323,977</b>					

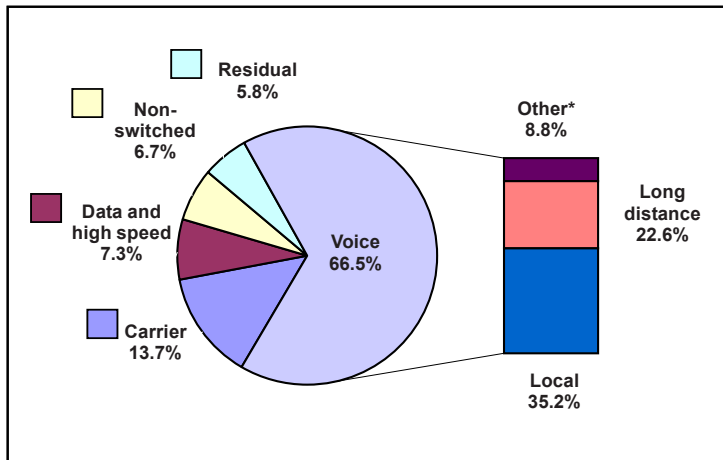
<sup>1</sup> Employed persons from SEPH estimate of national industrial employment.<sup>2</sup> Excludes official telephone lines.<sup>3</sup> Calculations do not include undercoverage estimates.

**TABLE 10. Long Distance Traffic, NAICS 51331, Quarterly, 2002**

Wired Telecommunications (NAICS 51331)	First Quarter		Second Quarter		Third Quarter		Fourth Quarter		Year to date	
		02/01 %		02/01 %		02/01 %		02/01 %		02/01 %
<b>Traffic statistics (thousands of minutes)<sup>1</sup></b>										
Long distance traffic										
Outbound calls	9,742,769		9,753,280						19,496,049	
Toll-free calls	2,458,475		2,425,176						4,883,651	
Inbound calls to Canada	<u>1,349,627</u>		<u>1,363,660</u>						<u>2,713,287</u>	
Total	13,550,871	8.6	13,542,116	11.3					27,092,987	9.9
<b>Traffic performance (minutes)<sup>1</sup></b>										
Long distance traffic										
<b>Outbound calls</b>										
per access line (VGE) <sup>2</sup>	500		505						1,005	
per capita	312		311						623	
<b>Toll-free calls</b>										
per access line (VGE) <sup>2</sup>	126		125						251	
per capita	79		77						156	
<b>Inbound calls to Canada</b>										
per access line (VGE) <sup>2</sup>	69		71						140	
per capita	43		44						87	
<b>Total</b>										
per access line (VGE) <sup>2</sup>	696	11.5	701	14.7					1,397	13.1
per capita	435	7.7	432	9.9					867	8.8

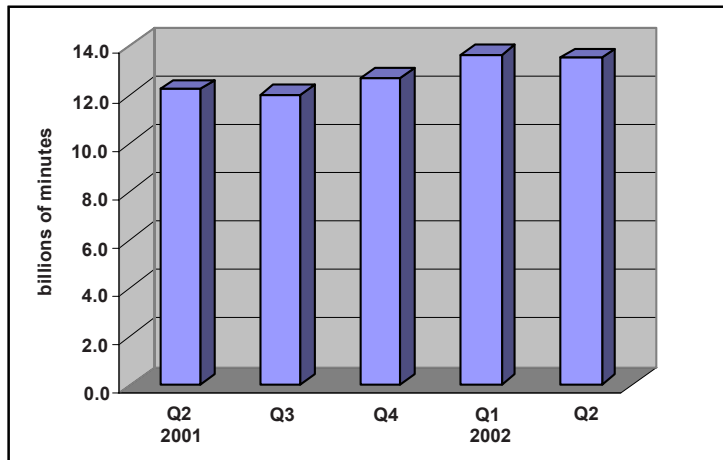
<sup>1</sup> Calculations do not include undercoverage estimates.

<sup>2</sup> Excludes official telephone lines.

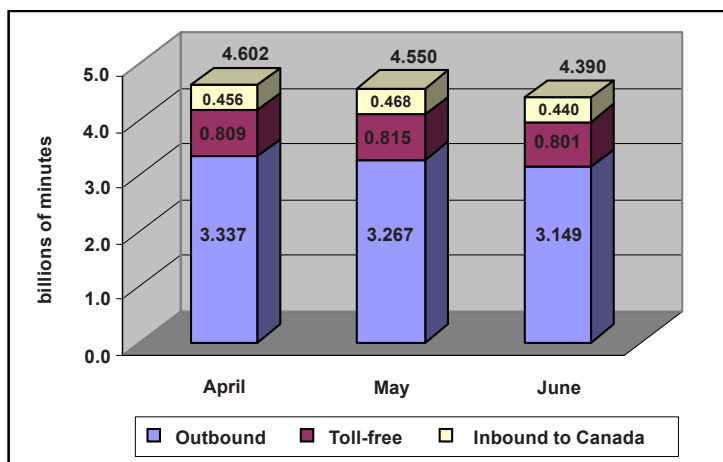


\* Calling features and connection charges.

**Figure 5.**  
Wired telecommunications operating revenue shares  
(Revenues \$ 4.88 billion)



**Figure 6.**  
Wireline traffic - Total long distance minutes  
(13.5 billion)



**Figure 7.**  
Monthly wireline long distance minutes,  
second quarter, 2002  
Total outbound minutes 9.8 billion  
Total toll-free minutes 2.4 billion  
Total inbound to Canada minutes 1.4 billion

ELECTRONIC PUBLICATIONS AVAILABLE AT  
**[www.statcan.ca](http://www.statcan.ca)**



**Wireless Telecommunications Carriers  
(NAICS 51332)**

**Tables and Graphs**

**TABLE 11. Operating Revenues, NAICS 51332, Quarterly, 2002**

Wireless Telecommunications (NAICS 51332)	First Quarter		Second Quarter		Third Quarter		Fourth Quarter		Year to date	
	\$000	02/01 %	\$000	02/01 %	\$000	02/01 %	\$000	02/01 %	\$000	02/01 %
<b>Telecommunications Operating revenues</b>										
Carrier services	162,366		183,333						345,699	
Local telephony										
Fixed (recurrent services)	728,422		753,992						1,482,414	
Air time (measured services)	314,192		338,842						653,034	
Other	<u>18,688</u>		<u>25,382</u>						<u>44,070</u>	
Total	1,061,302	14.4	1,118,216	14.5					2,179,518	14.4
Long Distance telephony										
Air time	105,476		117,126						222,602	
Other	<u>0</u>		<u>0</u>						<u>0</u>	
Total	105,476	4.0	117,126	8.6					222,602	6.4
Messaging - Paging	43,317		43,539						86,856	
Dispatch services (RCC)	12,450		13,443						25,893	
Other telecommunications services	<u>227,475</u>		<u>235,081</u>						<u>462,556</u>	
Total	1,612,386	15.3	1,710,738	12.8					3,323,124	14.0
<b>Other Operating revenues</b>	74,485	6.4	120,368	55.0					194,853	31.9
Undercoverage estimate	<u>34,695</u>	...	<u>37,662</u>	...					<u>72,357</u>	...
<b>Total Operating revenues</b>	<b>1,721,566</b>	<b>14.8</b>	<b>1,868,768</b>	<b>14.9</b>					<b>3,590,334</b>	<b>14.9</b>

**TABLE 12. Operating Expenses, NAICS 51332, Quarterly, 2002**

Wireless Telecommunications (NAICS 51332)	First Quarter		Second Quarter		Third Quarter		Fourth Quarter		Year to date	
	\$000	02/01 %	\$000	02/01 %	\$000	02/01 %	\$000	02/01 %	\$000	02/01 %
<b>Telecommunications Operating expenses</b>										
Carrier services	156,818		157,904						314,722	
Labour expenses	198,716		200,027						398,743	
Depreciation	337,970		344,432						682,402	
Other telecommunications expenses	<u>654,481</u>		<u>661,915</u>						<u>1,316,396</u>	
Total	1,347,985	(7.6)	1,364,278	(0.9)					2,712,263	(4.3)
<b>Other Operating expenses</b>	132,792	48.1	166,478	76.5					299,270	62.6
Undercoverage estimate	<u>27,451</u>	...	<u>28,378</u>	...					<u>55,829</u>	...
<b>Total Operating expenses</b>	<b>1,508,228</b>	<b>(4.4)</b>	<b>1,559,134</b>	<b>4.1</b>					<b>3,067,362</b>	<b>(0.3)</b>

**TABLE 13. Financial and Performance Indicators, NAICS 51332, Quarterly, 2002**

Wireless Telecommunications (NAICS 51332)	First Quarter		Second Quarter		Third Quarter		Fourth Quarter		Year to date	
	\$000	02/01 %	\$000	02/01 %	\$000	02/01 %	\$000	02/01 %	\$000	02/01 %
Operating revenues	1,721,566	14.8	1,868,768	14.9					3,590,334	14.9
Operating expenses	1,508,228	(4.4)	1,559,134	4.1					3,067,362	(0.3)
<b>Operating profit</b>	<b>213,338</b>	<b>372.0</b>	<b>309,634</b>	<b>140.5</b>					<b>522,971</b>	<b>939.9</b>
% of operating revenues	12.4	336.8	16.6	109.3					14.6	805.3
EBITDA <sup>1</sup>	551,308	74.2	654,066	43.6					1,205,373	56.1
<b>Revenue performance (\$) <sup>2</sup></b>										
Operating revenue per capita	55.20	13.7	59.68	13.6					114.88	13.6
Local revenue per subscriber	97.30	(5.2)	100.54	(2.7)					197.84	(3.9)
Average revenue per										
local minute (cents)	16.34	(14.1)	15.20	(11.5)					15.73	(12.7)
Long distance revenue per subscriber	9.67	(13.8)	10.53	(7.7)					20.20	(55.6)
Average revenue per										
long distance minute (cents)	15.06	(16.5)	14.68	(16.7)					14.86	(16.6)
Paging revenue per subscriber	35.15	2.9	35.44	9.6					70.59	6.1

<sup>1</sup> EBITDA - Earnings Before Interest, Taxes, Depreciation and Amortization.<sup>2</sup> Calculations do not include undercoverage estimates.

**TABLE 14. Employment and Labour Costs, NAICS 51332, Quarterly, 2002**

Wireless Telecommunications (NAICS 51332)	First Quarter		Second Quarter		Third Quarter		Fourth Quarter		Year to date	
		02/01 %		02/01 %		02/01 %		02/01 %		02/01 %
<b>Employment (persons)</b>										
Full-time	11,607	(2.4)	11,780	(1.3)					...	...
Part-time	<u>2,363</u>	22.5	<u>1,754</u>	(28.5)					...	...
Total	13,970	1.1	13,534	(6.0)					...	...
% of national industrial employment	0.110		0.101						...	...
Total (full-time equivalents - FTE)	12,206	(4.5)	12,710	(3.3)					...	...
Revenue (\$) per FTE employee	141,044		147,029						...	...
<b>Labour costs (\$000)<sup>1</sup></b>										
Full-time	194,123	9.3	190,343	5.8					384,466	7.6
Part-time	<u>10,017</u>	(24.8)	<u>15,031</u>	(17.4)					<u>25,047</u>	(20.5)
Total	204,139	6.9	205,374	3.7					409,513	5.3
Average Labour costs (\$) per FTE employee (annualized)	66,898	12.0	65,743	9.6					...	...

<sup>1</sup> Includes capitalized labour expenditures.

**TABLE 15. Capital Expenditures, NAICS 51332, Quarterly, 2002**

Wireless Telecommunications (NAICS 51332)	First Quarter		Second Quarter		Third Quarter		Fourth Quarter		Year to date	
	\$000	02/01 %	\$000	02/01 %	\$000	02/01 %	\$000	02/01 %	\$000	02/01 %
<b>Capital expenditures</b>	363,831	(66.6)	497,181	(6.7)					861,012	(46.9)
% of operating revenues	21.1	(70.9)	26.6	(18.8)					24.0	(53.8)
per subscriber (\$)	33.20	(72.3)	44.50	(20.6)					77.70	(55.8)
per capita (\$)	11.67	(66.9)	15.88	(7.7)					27.55	(47.5)



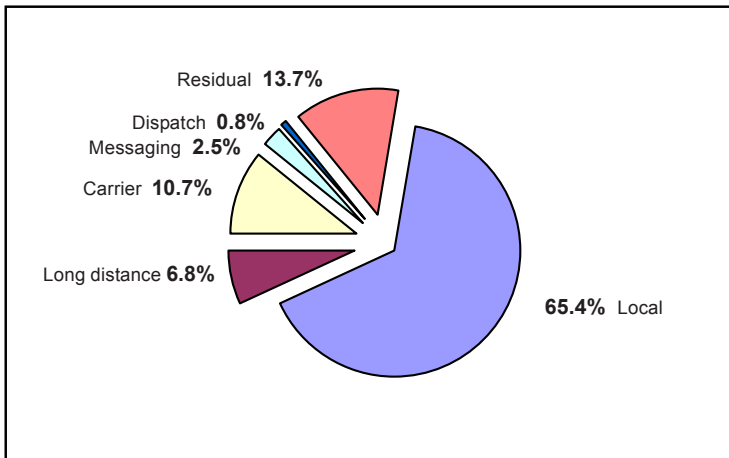
**TABLE 16. Network Infrastructure, NAICS 51332, Quarterly, 2002**

Wireless Telecommunications (NAICS 51332)	First Quarter		Second Quarter		Third Quarter		Fourth Quarter	
		02/01 %		02/01 %		02/01 %		02/01 %
<b>Network infrastructure (access)</b>								
<b>Mobile subscribers</b>								
Digital	7,227,234	42.9	7,620,377	38.0				
Analogue	<u>3,729,888</u>	(7.5)	<u>3,551,675</u>	(10.9)				
<b>Total Mobile telephony</b>	<b>10,957,122</b>	<b>20.5</b>	<b>11,172,052</b>	<b>17.5</b>				
Mobile telephony penetration per 100 inhabitants	35.1	19.4	35.7	16.3				
PSTN access paths per FTE employee	898		879					
<b>Paging subscribers</b>	1,664,629	(9.7)	1,660,819	(9.8)				
Paging penetration per 100 inhabitants	5.3	(11.7)	5.3	(11.7)				

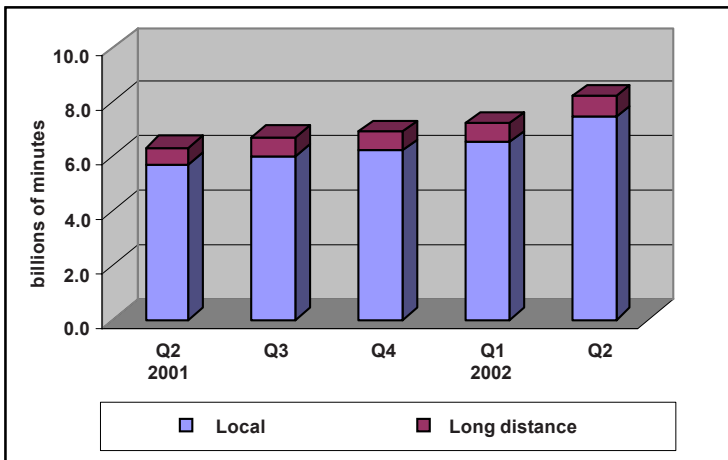
**TABLE 17. Traffic Statistics, NAICS 51332, Quarterly, 2002**

Wireless Telecommunications (NAICS 51332)	First Quarter		Second Quarter		Third Quarter		Fourth Quarter		Year to date	
		02/01 %		02/01 %		02/01 %		02/01 %		02/01 %
<b>Traffic statistics (thousands of minutes)<sup>1</sup></b>										
Billed minutes										
Local	6,494,458		7,357,944					13,852,402		
Long distance	<u>700,327</u>		<u>797,923</u>					<u>1,498,250</u>		
Total	7,194,785	32.3	8,155,867	29.4				15,350,652	30.7	
<b>Traffic performance (minutes)<sup>1</sup></b>										
Local minutes per subscriber	595	10.4	662	10.0				1,257	10.2	
Long distance minutes per subscriber	64	3.2	72	10.8				136	7.1	
Billed minutes per subscriber	660	9.6	733	10.1				1,393	9.9	

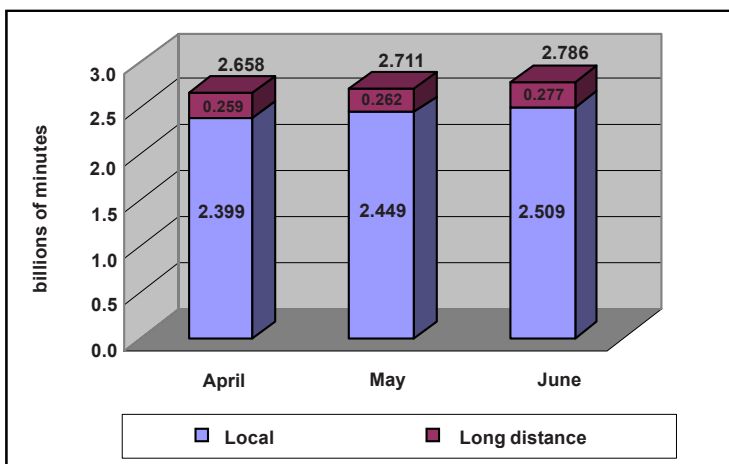
<sup>1</sup> Calculations do not include undercoverage estimates.



**Figure 8.**  
Wireless telecommunications operating revenue shares  
(Revenues \$1.71 billion)



**Figure 9.**  
Wireless traffic billed minutes  
(8.2 billion)



**Figure 10.**  
**Monthly wireless billed minutes, second quarter, 2002**  
Wireless billed minutes increased to just over 8.0 billion in the second quarter of 2002, an increase of 29.4% from second quarter last year. The majority of these were local minutes (7.4 billion)

**Resellers, Satellite, and Other Telecommunications  
(NAICS 51333, 51334, 51339)**

**Undercoverage Estimates**

**TABLE 18. Undercoverage estimates, NAICS 51333, 4, 9, Quarterly, 2002**

Resellers, Satellite, and Other Telecommunications (NAICS 51333, 51334, 51339)	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Year to date
<b>Financial indicators (\$000)</b>					
Operating revenues	319,943	331,144			651,087
Operating expenses	334,383	357,946			692,329
Operating profit margin	(14,440)	(26,802)			(41,242)
% of operating revenues	(4.5)	(8.1)			(6.3)
<b>Employment (persons)</b>					
Full-time	4,574	4,630			...
Part-time	<u>288</u>	<u>273</u>			...
Total	4,862	4,903			...
% of national industrial employment	0.038	0.037			...
Total (full-time equivalents - FTE)	4,665	4,726			...
<b>Labour costs (\$000)</b>					
Full-time	67,042	69,364			136,406
Part-time	<u>1,339</u>	<u>1,445</u>			<u>2,784</u>
Total	68,382	70,809			139,191

**HOW TO ORDER ...**

To order a publication you may telephone (613) 951-7277 or use fax (613) 951-1584 or Internet: You may also call 1 800 267-6677 (Canada and United States) toll free. If you order by telephone, written confirmation is not required.

## CONCEPTS AND METHODOLOGY

### Survey Objectives

The quarterly survey of telecommunications service providers (NAICS 5133) serves to measure the industry's financial performance, aspects of its network infrastructure, and industry operating characteristics relating to employment, capital expenditures and traffic activity. The survey improves on the monthly survey it replaces by: expanding survey coverage to include the major alternative wireline carriers and the wireless industry; providing undercoverage estimates for those units that make up the industry but are not included in the survey (resellers, satellite and small wireline and wireless service providers); using concepts consistent with the redesigned annual survey introduced in 1997; and, reducing reporting burden on respondents who had previously submitted twelve reports each year.

### Survey Coverage

The quarterly survey covers the largest establishments primarily engaged in the provision of telecommunications services and which operate telecommunications facilities (wired and wireless providers). There are 22 companies included in the survey representing every province and territory. Not surveyed are companies providing reselling, satellite and other services n.e.c. Activities for these companies are estimated based on annual surveys.

### Industrial Classification

Telecommunications service providers are classified to one of the five North American Industry Classification System (NAICS) telecommunications industries (Wired, Wireless, Resellers, Satellite and Other<sup>1</sup>). Released in 1998, NAICS is the most up-to-date industry classification in use, and was jointly developed by Canada, the United States and Mexico. Reporting units are classified

according to the activity in which they are primarily engaged and the main technology they employ. This system allows for more accurate industry classification than the previous 1980 Canadian Standard Industrial Classification (CSIC). For further details about NAICS and for industry concordance between NAICS and the CSIC at all levels, consult the Statistics Canada publication 12-501-XPE, issue number 97001.

### Survey Methodology

The quarterly survey collects data from the largest companies corresponding to NAICS industries 51331 (Wired) and 51332 (Wireless), reflecting approximately 99.0% of revenue activity for these industries and 93.0% of revenue activity for the telecommunications industry overall (NAICS 5133) (see Table A). The annual survey, a census of telecommunications service providers, is used to produce undercoverage estimates for those units that are not surveyed in the quarterly, so that total industry activity can be estimated. NAICS telecommunications industries 51333, 51334 and 51339 are not surveyed because their respondents are generally smaller, and the few that are larger tend to dominate their industries, which would pose disclosure problems if they were to be included.

Variables which may be subject to wide variation from period to period, such as capital expenditures and non-operating revenues and expenses, were not estimated for non-surveyed units. In addition, these activities tend to be less significant the smaller the establishment (which is typical of the non-surveyed industries), such that the survey values for these variables are good proxies for total industry aggregates.

<sup>1</sup> NAICS 51331

*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.*

NAICS 51332

*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).*

NAICS 51333

*A telecommunications service provider is a reseller if it is primarily engaged in purchasing access and network capacity from owners and operators of telecommunications networks and reselling telecommunications services to their clients.*

NAICS 51334

*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.*

NAICS 51339

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

Coverage rates for the 2002 Quarterly survey are calculated by determining how much of total industry activity is attributed to the current quarterly respondents, using the most recent annual data available (2000), taking into consideration buy-outs, mergers and consolidations since 2000, and applying these ratios to the current quarterly data. The table below indicates coverage rates for operating revenues with respect to each NAICS industry. Undercoverage rates for other variables are similar to the rates presented here.

**Table A - Coverage rates for Operating Revenues**

NAICS	Coverage (%)	Undercoverage (%)	Total (%)
51331	99.0	1.0	100.0
51332	100.0	0.0	100.0
51333,4,9	-	100.0	100.0
5133	93.0	7.0	100.0

Undercoverage estimates for access lines are not adjusted between quarters because the observed growth in surveyed units (large incumbents and entrants) is not expected to be replicated by non-surveyed units (small, often rural, service providers). The undercoverage estimate simply reflects the number of access lines of the non-surveyed units for the most recent annual data available. Mobile subscriber undercoverage has not been adjusted between quarters, not because non-surveyed units are thought to be static, but because these units constitute such a small share of the industry that any change attributable to them would be negligible.

When 2000 annual data is processed (Winter of 2003), 2000 quarterly estimates will be adjusted to reflect the final 2000 compilations. Once updated by the annual data, historical quarterly series will be directly comparable to published annual series. The assumptions for calculating quarterly undercoverage rates have been reviewed now that 2000 annual data are being processed, and will be presented in a future bulletin.

## Quality and Limitations of Data

When Statistics Canada receives the completed quarterly questionnaires, they are checked for consistency with previous returns. All unusual occurrences are queried for confirmation and clarified with the respondents concerned. The data are almost always actual amounts, but where circumstances necessitate, best estimates are used from the respondents or derived by Statistics Canada based on the respondent's historical records and current industry trends.

The quarterly survey of telecommunications service providers is not a sample survey and therefore sampling errors do not occur. Non-sampling errors, however may occur. There are potentially four sources of non-sampling error that can be identified in any given survey: coverage error, response error, non-response error and processing error. Unlike sampling error, non-sampling error is not readily quantified. *Coverage error* results from inadequate representation of the intended population. This error may occur during selection of the survey population, or during data collection and processing. There is no evidence of significant coverage error in the 2002 Quarterly Survey of Telecommunications.

*Response error* may be due to many factors, including faulty design of the questionnaire, interviewers' or respondents' misinterpretation of questions, or respondents' faulty reporting. Frequent changes in company personnel may also lead to response error. The quarterly survey has several features that help respondents to complete the questionnaire, including logic and consistency checks, and a glossary of terms and concepts. Responses are compared from quarter to quarter and any significant deviations are queried by analysts to ensure their accuracy. However, even with these checks, the accuracy of data depends on the respondent's willingness to consult their records.

*Non-response error* occurs because not all potential respondents cooperate fully. This has not been a concern with the quarterly survey. *Processing errors* may also occur during coding, entry, editing and tabulation of the data. In this survey, procedures for quality control were used during the processing of data, as indicated above, to keep such errors to a minimum.

## Revisions

Revisions are necessary as more complete data become available. The nature of the telecommunications industry is such that respondents often contact Statistics Canada to update their data or to report errors in data they had previously reported. Revisions are made each quarter to reflect these changes or corrections in the data. The most recent release of quarterly telecommunications data should always be consulted for the most accurate information.

Readers should note that some revisions have been made to reflect new accounting guidance and industry practice, as well as mergers and consolidations between companies. Some changes to traffic statistics were made to improve the quality of the data. Data have also been updated to reflect changes in undercoverage estimates. These estimates are now based on more recent weightings, which became available after the first quarter data were released in September, 2002.

For more information, or to enquire about the concepts, methods and data quality, please contact: Science, Innovation and Electronic Information Division at (613) 951-2581.

### **Standards of service to the public**

*Statistics Canada is committed to serving its clients in a prompt, reliable and courteous manner and in the official language of their choice. To this end, the agency has developed standards of service which its employees observe in serving its clients. To obtain a copy of these service standards, please contact your nearest Statistics Canada Regional Reference Centre.*

### **Note of appreciation**

*Canada owes the success of its statistical system to a long-standing partnership between Statistics Canada, the citizens of Canada, its businesses, governments and other institutions. Accurate and timely statistical information could not be produced without their continued cooperation and goodwill.*

*The development of Statistics Canada's Telecommunications Statistical Infrastructure Program benefited from the advice and financial support of the Spectrum, Information Technologies and Telecommunications Sector, Industry Canada.*

ELECTRONIC PUBLICATIONS AVAILABLE AT  
**[www.statcan.ca](http://www.statcan.ca)**





## GLOSSARY OF TERMS

**Advanced services ratio.** The ratio of operating revenues from software enhanced telecommunications services (e.g., calling features), services supporting internet and packet-switched communications, and other high speed applications (switched and non-switched services), and traditional telephony (local and long distance voice, connection and narrowband non-switched or private line services). (*Rapport des services de pointe*)

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

**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. This calculation is a moving average, such that previous quarter data is included in the current quarter calculation, and adjusted to arrive at an annual estimate. The first quarter estimate is multiplied by four, the second quarter estimate is calculated by summing labour costs for the first two quarters divided by the average number of FTE employees for both quarters, and multiplying that result by two, etc. (*Coûts moyens de la main-d'oeuvre par employés à plein temps ou l'équivalent (annualisés)*)

**Average revenue per long distance minute.** Long distance operating revenues divided by long distance outbound minutes (including toll-free). (*Revenu moyen par minute de service interurbain*)

**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. (*Accès à large bande*)

**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). (*Options de gestion*)

**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). (*Appels ou messages de départ en provenance du Canada*)

**Calls/messages, Incoming/Inbound.** Calls/messages from either the United States or overseas (foreign countries other than the United States) and terminating in Canada. (*Appels ou messages d'arrivée internationaux à destination du Canada*)

**Capital expenditures per subscriber.** Dollar amount of wireless capital expenditures for every wireless subscriber. (*Dépenses en immobilisations par abonnés*)

**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. (*Services aux entreprises de télécommunications*)

**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. (*Cellulaire de télécommunications*)

**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. (*Circuit*)

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

**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. (*Contribution*)

**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. (*Minutes de conversation*)

**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. (*Services de données et à haute vitesse*)

**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.). (*Service de dépêche*)

**Earnings before Interest, Taxes, Depreciation and Amortization (EBITDA).** For this survey, this is calculated by summing operating profit and depreciation. (*Bénéfices avant intérêts, impôts, dépréciation et amortissement (BAIDA)*)

**Employee.** Any person drawing pay for services rendered or for paid absences and for whom an employer must complete a Canada Customs and Revenue Agency 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 unincorporated 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. (*Employés*)

**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. (*Services de radiocommunications mobiles spécialisés (SRMS)*)

**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. (*Établissement*)

**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. (*Fournisseurs de télécommunications exploitant leurs propres installations*)

**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 circumstances, fixed wireless is known as wireless local loop (WLL). Fixed wireless can use either digital or analogue transmission technology. (*Sans fil fixe*)

**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.** (*Avantages sociaux*)

**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). (*Employés à plein temps ou l'équivalent (EPT)*)

**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. (*Interconnexion*)

**Labour costs.** The total remuneration paid to employees before deductions (the equivalent to the taxable employment income reported in Box 14 of the employees Canada Customs and Revenue Agency 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. (*Coûts de la main-d'oeuvre*)

**Local switched telecommunications.** The switching and transmission of voice, data, image and video messages over the PSTN within local calling areas. (*Télécommunications commutées locales*)

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

**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. (*Messagerie*)

**National industrial employment.** Total national employment from Statistics Canada's Survey of Employment, Payrolls and Hours (SEPH). The target population is composed of all employers in Canada, except those in agriculture, fishing and trapping, private households services, religious organizations and military personnel of defence services. This figure does not include self-employment. For further information see Statistics Canada Catalogue No. 72-002-XPB. (*Emploi industriel national*)

**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. (*Bande étroite (SCP)*)

**Net income before taxes.** Total revenues (operating revenues plus non-operating revenues) less total expenses (operating expenses plus non-operating expenses). (*Revenu net avant impôt*)

**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. (*Services d'accès au réseau*)

**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. (*Télécommunications sans commutation*)

**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. (*Télécommunications sans commutation*)

**Operating profit.** Total operating revenues less total operating expenses. (*Bénéfice d'exploitation*)

**Operating revenue per capita.** Industry operating revenue per person based on the quarterly population estimate. (*Revenus d'exploitation par personne*)

**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. (*Commutation par paquets*)

**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. (*Radiomessagerie*)

**Paging revenue per subscriber.** Paging revenues per paging subscribers (does not include undercoverage estimate). (*Revenus de messagerie par abonné*)

**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. (*Services de commutations personnelles (SCP)*)

**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. (*Réseau téléphonique public commuté (RTPC)*)

**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. (*Lignes d'accès Centrex (RTPC)*)

**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. (*Ligne d'accès individuelle (RTPC)*)

**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. (*RTPC, Réseau numérique d'intégration de services (RNIS)*)

**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. (*Accès à débit de base ADB*)

**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. (*Accès à débit primaire ADP*)

**PSTN access paths per FTE employee.** Access lines for the wireline industry and mobile subscribers for the wireless industry, per full-time equivalent employee in the respective industries. (*Voies d'accès RTPC par employé à plein temps ou l'équivalent*)

**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). (*Autres accès (RTPC)*)

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

**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). (*Téléphones publics (RTPC)*)

**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. (*Revendeur*)

**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). (*Services Internet de détail*)

**Revenue per FTE employee.** Total operating revenues per full-time equivalent employee. (*Revenu par employé à plein temps ou l'équivalent*)

**Satellite, fixed.** Communications via satellite transmission in which the terrestrial terminal points are fixed. (*Satellite (Fixe)*)

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

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

**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. (*Équipement de commutation*)

**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. (*Télécommunications*)

**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. (*Télécommunications par fil*)

**Telecommunications, wireless.** Establishments engaged in operating and maintaining switching and transmission facilities to provide direct communications via the airwaves. (*Télécommunications sans fil*)

**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. (*Autres services de télécommunications*)

**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. (*Télédensité*)

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

**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. (*Téléphone*)

**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. (*Équipement de terminal*)

**Voice services.** Services generally associated with voice communication, narrowband or voice-grade communication, including voice telephony, fax, PSTN access, etc. (*Services de transmission de la voix*)

**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. (*Qualité téléphonique*)

**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. (*Équivalent qualité téléphonique (équivalent « canal B »)*)

**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. (*Services interurbain planifié (WATS)*)

**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. (*Large bande*)

**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. (*Service sans fil à large bande*)