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### HIGHLIGHTS

- ▶ Operating revenues for the telecommunications industry were \$7.84 billion in the first quarter of 2001, a 5.5% increase from first quarter, 2000. The industry's operating expenses totalled \$6.84 billion, an increase of 11.3% from what was reported one year ago.
- ▶ Operating profit totalled \$ 994 million in the first quarter, 12.7% of operating revenues. This is 22.4% below first quarter 2000 results (\$ 1.28 billion).
- ▶ Capital expenditures were \$2.25 billion this quarter (\$1.15 billion in the wireline industry and \$1.09 billion in the wireless industry). This is 19.3% and 74.3% of wireline and wireless operating revenues respectively.
- ▶ Per capita wireline investment this quarter was \$37.34, while wireless capital expenditures amounted to \$35.44 per capita and \$120.41 for each mobile subscriber.
- ▶ The telecommunications industry employed 90,232 persons this quarter; 79,058 in full-time positions and 11,174 in part-time positions.
- ▶ Full-time employment increased 0.9% from the first quarter of last year. This entailed a loss of 362 full-time employees in the wireline industry, while 469 full-time positions were added to the wireless industry over the same period.
- ▶ Just over 29.3 million voice-grade access paths were connected to the public-switched telephone network (PSTN). This consists of 9.1 million mobile access paths (cellular subscribers) and 20.3 million fixed access paths (19.3 million single access lines and 116,643 lines with multiple access).
- ▶ Most of the recent growth in PSTN access has come from wireless or mobile services, which increased 26.0% this quarter, from the first quarter of 2000.

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- .. figures not available.
- ... figures not appropriate or not applicable.
- nil or zero.
- r revised figures.
- x confidential to meet secrecy requirements of the Statistics Act.
- ( ) negative value.

## 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 **operating revenues** were \$7.84 billion in the first quarter of 2001 – an increase of 5.5% from first quarter, 2000. Facilities-based wireline telecommunications services accounted for 76.1% of total industry operating revenues, while wireless, resellers, satellite, and other services accounted for 23.9% of the first quarter total. The dominance of wireline carriers vis-à-vis wireless service providers and resellers has been relatively unchanged over the previous 8 quarters (Figure 1).

**Operating revenues in the wireline industry** were \$5.97 billion this quarter, up 0.9% from last year but down 4.7% from fourth quarter, 2000. Local services (\$1.71 billion) continued to represent the largest share (28.7%) of their operating revenues, followed by long distance services (\$1.27 billion / 21.3% of the total) and carrier services (\$744 million / 12.5% of the total).

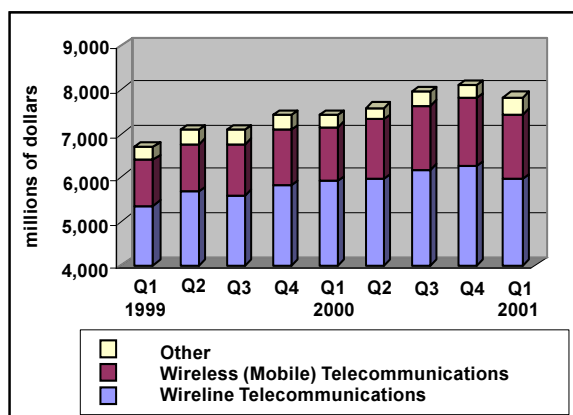
**Operating revenues in the wireless industry** were \$1.47 billion this quarter, up 19.0% from last year but down 3.9% from fourth quarter, 2000. As with wireline carriers, local services are the wireless industry’s major source of revenues, but account for a greater share of total operating revenues (\$900 million / 61.1%).

**Operating profit** totalled \$994 million in the first quarter, or 12.7% of operating revenues. Returns varied widely, however, depending on the telecommunications industry. The operating profit for wireline carriers was about 19 cents on each revenue dollar, while the wireless carriers continued in a loss position (- 5 cents on each revenue dollar) for the second consecutive quarter. Lower profit levels in the wireless industry undoubtedly reflect the on-going roll-out costs for new services, and for establishing each service provider’s presence in a highly dynamic and competitive market. The reseller, satellite and other industries (NAICS 51333, 4 and 9, respectively) had an estimated operating loss amounting to nearly 12 cents for each dollar earned this quarter.

The telecommunications industry’s on-going demand for high-technology, capital-intensive applications can be seen in this quarter’s **capital expenditures**. The wireline and wireless industries had capital outlays of over \$1.15 billion and \$1.09 billion, respectively, representing 19.3% and 74.3% of first quarter operating revenues (Figure 2). Total capital expenditures have more than doubled since first quarter last year (\$2.25 billion compared to \$1.02 billion). It should be noted that investment in the wireless industry increased dramatically this quarter due to expenditures in the recent spectrum auction.

Figure 1.

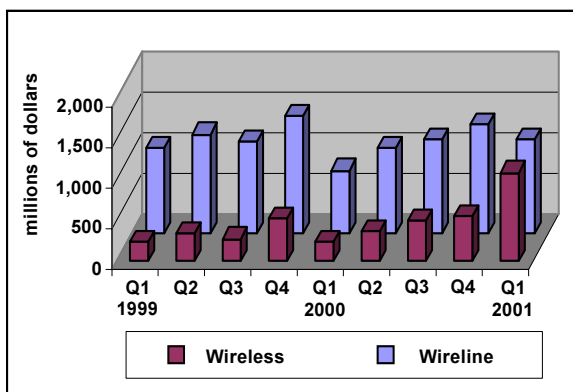
The dominance of wireline carriers vis-à-vis wireless service providers and resellers has been relatively unchanged over the previous 8 quarters. (Revenues \$7.84 billion)



Source: Quarterly Telecommunications Statistics

Figure 2.

Capital expenditures in the wired and wireless industries dropped substantially in the first quarter of 2000, but have been expanding into 2001. The wireless industry investment level reflects the 2001 spectrum auction. (Capital expenditures \$2.25 billion)

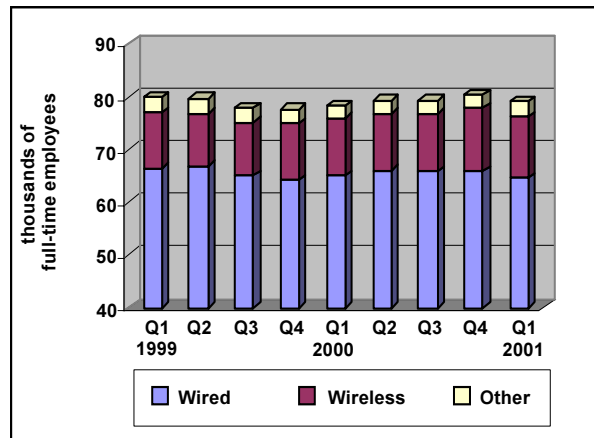


Source: Quarterly Telecommunications Statistics

**Figure 3.**

**Full-time employment in the telecommunications industries has grown by 0.9% since first quarter, 2000.**

There were 79,058 **full-time employees** this quarter. This represents a 1.5% decrease from the fourth quarter of 2000, but a 0.9% increase from the first quarter of that year (a gain of 711 full-time employees) (Figure 3). Since the first quarter last year, 362 full-time positions were lost in the wireline industry, while the wireless industry gained 469 full-time employees. The 'other' telecommunications industries gained 604 full-time employees over the same period. **Average annual labour costs** (wages, salaries and benefits) per employee (full-time equivalent) were up from the fourth quarter of 2000 for both the wireline industry (\$69,855) and wireless industry (\$62,158).



Source: Quarterly Telecommunications Statistics.

Public-switched telephone network (PSTN) **wireline access** was just over 19.4 million lines at the end of the first quarter, a decrease of 1.9% from last year's level. Residential lines accounted for 66.2% of the total and business lines represented 33.8% of PSTN lines (Text Table 1).

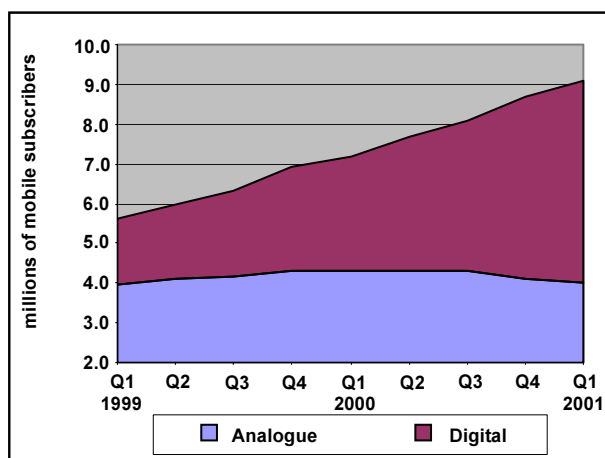
Each **ISDN (Integrated Service Digital Network) line** is capable of providing multiple access paths to the PSTN, based on their enhanced bandwidth. With ISDN lines converted to their voice-grade bandwidth equivalents (ISDN BRA = 2 lines, ISDN PRA = 23 lines), total fixed access this quarter was nearly 20.3 millions lines, a 1.3% decrease from what was reported one year ago.

**Text Table 1. PSTN Network Infrastructure - Wired Access**

PSTN Access	First Quarter, 2001		
	Residential	Business	Total
<b>Wired Access Lines (NAICS 51331)</b>			
Individual lines	12,598,062	3,151,830	15,749,892
Party lines	84,264	1,353	85,617
ISDN BRA	193	83,166	83,359
ISDN PRA	...	33,284	33,284
Public telephones	...	170,331	170,331
Centrex	...	2,513,912	2,513,912
Other	-	542,948	542,948
Undercoverage estimate	194,124	75,772	269,896
<b>Total Wired Access Lines</b>	<b>12,876,643 (66.2%)</b>	<b>6,572,596 (33.8%)</b>	<b>19,449,239 (100%)</b>
<b>Total voice-grade equivalents</b>	<b>12,876,836 (63.5%)</b>	<b>7,388,010 (36.5%)</b>	<b>20,264,846 (100%)</b>

Source: Quarterly Telecommunications Statistics, 1<sup>st</sup> Quarter, 2001.

**Figure 4.**  
**Mobile subscribers**



First quarter mobile telephony subscribers were up 26.0% from last year and increased by 3.8% over last quarter. At quarter end, there were over 9.0 million subscribers, more than one in every four Canadians. In contrast to wireline access, which is nearly all digital, only 55.8% of wireless access was digital, representing just over 5.0 million mobile subscribers (Figure 4) (Text Table 2).

**Teledensity** measures the penetration of telecommunications services in a given population. For the wireline and wireless industries, there were 65.6 and 29.4 access paths (VGE) per 100 inhabitants, respectively. Total teledensity per 100 inhabitants was 95.0 in the first quarter, up 4.7% from last year's first quarter figure (Text Table 3).

**Paging subscriptions had been increasing over the last few quarters** despite the strong growth in cellular telecommunications, considered to be a substitute for paging. There were 1.9 million pagers in service in the first quarter, representing a 4.5% increase over the first quarter of last year.

Long distance **traffic** is nearly completely undertaken via wireline access, which stood at 12.5 billion minutes this quarter. About 5.3% 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 first quarter of 2000 (33.6%) to 5.4 billion.

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

**Text Table 2. PSTN Network Infrastructure - Mobile Access**

PSTN Access	First Quarter, 2001
<b>Mobile Access (NAICS 51332)</b>	
Digital	5,067,755
Analogue	4,018,906
<b>Total Mobile Access</b>	<b>9,086,661</b>

Source: Quarterly Telecommunications Statistics, 1<sup>st</sup> Quarter, 2001.

**Text Table 3. PSTN Network Infrastructure - Total Access**

<b>Teledensity</b>	
Total PSTN Access	28,535,900
Total PSTN Access (VGE)	29,351,507
Wired access (VGE) per 100 inhabitants	65.6
Wireless access (VGE) per 100 inhabitants	29.4
Total PSTN (VGE) per 100 inhabitants	95.0

Source: Quarterly Telecommunications Statistics, 1<sup>st</sup> Quarter, 2001.

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**Telecommunications Industry  
(NAICS 5133)**

**Summary Tables**

**TABLE 1. Telecommunications Industry Group (NAICS 5133) Summary, Quarterly, 2001**

	First Quarter		Second Quarter		Third Quarter		Fourth Quarter		Year to date	
		01/00 %		01/00 %		01/00 %		01/00 %		01/00 %
<b>Financial indicators (\$000)</b>										
Operating revenues	7,836,077	5.5							7,836,077	5.5
Operating expenses	6,841,728	11.3							6,841,728	11.3
Operating profit	994,349	(22.4)							994,349	(22.4)
% of operating revenues	12.7	(26.5)							12.7	(26.5)
Capital expenditures <sup>1</sup>	2,246,776	120.3							2,246,776	120.3
<b>Employment (persons)</b>										
Full-time	79,058	0.9							...	...
Part-time	11,174								...	...
Total Employment	90,232								...	...
% of national industrial employment <sup>2</sup>	0.718								...	...
Total Full-time equivalents (FTE)	84,734								...	...
<b>Labour costs</b>										
Total Labour costs (\$000)	1,480,852								1,480,852	
Average Labour costs (\$) per FTE employee (annualized)	69,717								...	...
<b>PSTN access paths (fixed and mobile)</b>										
Total fixed lines and mobile subscribers	28,535,900	5.5							...	...
Total voice-grade equivalents (VGE)	29,351,507	5.8							...	...
Teledensity (VGE per 100 inhabitants)	95.0	4.7							...	...

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

<sup>1</sup> Comprises 51331 (Wireline) and 51322 (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-XPB.



**TABLE 2. Telecommunications Industries Summary, First Quarter, 2001**

NAICS industries	51331	51332	51333, 4, 9	5133
thousands of dollars				
<b>Operating revenues</b>				
Telecommunications operating revenues	5,190,390	1,371,189	..	..
Other operating revenues <sup>1</sup>	693,266	70,019	..	..
Undercoverage estimate	<u>83,263</u>	<u>30,626</u>	<u>397,324</u>	<u>511,213</u>
Total operating revenues	5,966,919	1,471,834	397,324	7,836,077
% of total industry	76.1	18.8	5.1	100.0
<b>Operating expenses</b>				
Telecommunications operating expenses	4,575,030	1,431,487	..	..
Other operating expenses	200,888	89,667	..	..
Undercoverage estimate	<u>73,589</u>	<u>27,239</u>	<u>443,827</u>	<u>544,656</u>
Total operating expenses	4,849,507	1,548,393	443,827	6,841,728
% of total industry	70.9	22.6	6.5	100.0
<b>Operating profit</b>				
	<b>1,117,412</b>	<b>(76,560)</b>	<b>(46,503)</b>	<b>994,349</b>
% of operating revenues	18.7	(5.2)	(11.7)	12.7
<b>Non-operating revenues and expenses (survey units only)</b>				
Non-operating revenues	580,236	(2,975)	..	..
Non-operating expenses				
Interest expenses	452,187	194,205	..	..
Other	<u>(11,194)</u>	<u>18,402</u>	..	..
Total Non-operating expenses	440,993	212,607	..	..
<b>Net income before taxes</b>				
	<b>1,256,655</b>	<b>(292,142)</b>	<b>..</b>	<b>..</b>
<b>Capital expenditures</b>				
Total Capital expenditures	1,152,674	1,094,102	..	..
% of operating revenues	19.3	74.3	..	..
<b>Employment (persons)</b>				
Total Full-time	64,569	11,458	3,031	79,058
Total Part-time	<u>9,198</u>	<u>1,789</u>	<u>187</u>	<u>11,174</u>
Total Employment	73,767	13,247	3,218	90,232
% of national industrial employment	0.587	0.105	0.026	0.718
Total Full-time equivalents (FTE)	69,239	12,321	3,174	84,963
<b>Labour costs</b>				
Total Full-time	1,127,609	178,051	76,614	1,382,274
Total Part-time	<u>81,563</u>	<u>13,405</u>	<u>3,610</u>	<u>98,578</u>
Total Labour costs	1,209,172	191,455	80,224	1,480,852
Average Labour costs (\$) per FTE employee (annualized)	69,855	62,158	..	69,717

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

**TABLE 3. Summary of Telecommunications Industries Analytical Indicators, Quarterly, 2001**

NAICS industries	51331				51332			
	I	II	III	IV	I	II	III	IV
<b>Financial</b>								
Operating revenue per capita (\$)	193.28				47.68			
Operating profit (% of operating revenues)	18.7				(5.2)			
Average revenue per long distance minute (cents) <sup>1</sup>	10.77				18.03			
Capital expenditures per capita (\$)	37.34				35.44			
Capital expenditures (% of operating revenues)	19.3				74.3			
<b>Employment/Labour</b>								
Industry employment as a % of national industrial employment <sup>2</sup>	0.587				0.105			
Revenue per FTE employee (\$)	86,178				119,461			
PSTN access paths per FTE employee	293				738			
Average Labour costs (\$) per FTE employee (annualized)	69,855				62,158			
Labour costs as a % of operating revenues	20.3				13.0			
<b>Teledensity (VGE)</b>								
PSTN access paths per 100 inhabitants	65.6				29.4			
<b>Traffic<sup>1, 3</sup></b>								
Long distance minutes per access path (VGE)	624				62			
Long distance minutes per capita	404				18			

<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, private households services, religious organizations and military personnel of defence services. For further information see Statistics Canada Catalogue No. 72-002-XPB.

<sup>3</sup> Calculations do not include undercoverage estimates.

**Wired Telecommunications Carriers  
(NAICS 51331)**

**Tables and Graphs**

**TABLE 4. Wired Telecommunications Carriers (NAICS 51331), Quarterly, 2001**

Wired Telecommunications (NAICS 51331)	First Quarter		Second Quarter		Third Quarter		Fourth Quarter		Year to date	
	\$000	01/00 %	\$000	01/00 %	\$000	01/00 %	\$000	01/00 %	\$000	01/00 %
<b>Operating revenues</b>										
<b>Telecommunications Operating revenues</b>										
Carrier services										
Contribution	226,393								226,393	
Interconnection	437,096								437,096	
Circuit rentals	18,869								18,869	
Other	<u>61,702</u>								<u>61,702</u>	
Total Carrier services	744,060	(2.0)							744,060	(2.0)
Voice services										
Local telephony	1,714,275	1.0							1,714,275	1.0
Long distance telephony	1,271,957	(7.7)							1,271,957	(7.7)
Calling features	290,832	8.9							290,832	8.9
Connection	<u>88,007</u>	(2.9)							<u>88,007</u>	(2.9)
Total Voice services	3,365,071	(2.0)							3,365,071	(2.0)
Data and high speed services										
Narrowband packet-switched	236,892								236,892	
High speed switched <sup>1</sup>	<u>282,493</u>								<u>282,493</u>	
Total Data and high speed services	519,385	26.5							519,385	26.5
Non-switched services (private lines)										
Narrowband	254,961								254,961	
High speed	<u>33,642</u>								<u>33,642</u>	
Total Non-switched services	288,603	19.1							288,603	19.1
Other telecommunications services	<u>273,271</u>								<u>273,271</u>	
Total	5,190,390	(0.2)							5,190,390	(0.2)
<b>Other Operating revenues</b>										
Terminal equipment rentals	70,710								70,710	
Sale of telecommunications goods	113,008								113,008	
Directory services	54,340								54,340	
Retail Internet services	87,825								87,825	
Other services n.e.c.	<u>367,383</u>								<u>367,383</u>	
Total	693,266	28.6							693,266	28.6
Undercoverage estimate	<u>83,263</u>	...							<u>83,263</u>	...
<b>Total Operating revenues</b>	<b>5,966,919</b>	<b>0.9</b>							<b>5,966,919</b>	<b>0.9</b>
<b>Revenue performance<sup>2</sup> (\$)</b>										
Operating revenue per capita	193.28	0.0							193.28	0.0
Voice services revenue per PSTN line	168.30	(3.3)							168.30	(3.3)
Local revenue per PSTN line	85.74	(0.4)							85.74	(0.4)
Long distance revenue per PSTN line	63.61	(9.0)							63.61	(9.0)
Average revenue per										
long distance minute(cents)	10.77	(7.1)							10.77	(7.1)
Advanced services ratio <sup>3</sup> (%)	25.3	20.5							25.3	20.5

<sup>1</sup> Wideband and broadband circuit- and packet-switched services.<sup>2</sup> Calculations do not include undercoverage estimates, and where applicable are based on voice-grade equivalent (VGE) PSTN lines.<sup>3</sup> Ratio of operating revenues from new services compared to traditional telecommunications services (%).

TABLE 4 continued...

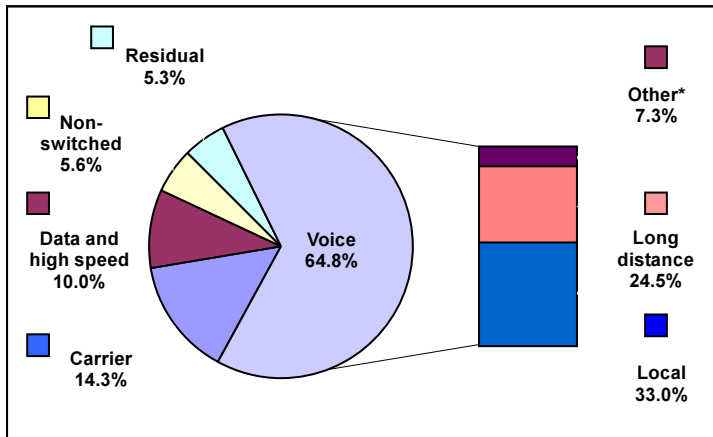
Wired Telecommunications (NAICS 51331)	First Quarter		Second Quarter		Third Quarter		Fourth Quarter		Year to date	
	\$000	01/00 %	\$000	01/00 %	\$000	01/00 %	\$000	01/00 %	\$000	01/00 %
<b>Operating expenses</b>										
<b>Telecommunications Operating expenses</b>										
Carrier services										
Contribution	260,699								260,699	
Interconnection	553,931								553,931	
Circuit rentals	186,891								186,891	
Other	<u>196,936</u>								<u>196,936</u>	
Total - Carrier services	1,198,457	(3.2)							1,198,457	(3.2)
Labour expenses	1,122,127	2.2							1,122,127	2.2
Depreciation	1,010,422	1.7							1,010,422	1.7
Other	<u>1,244,024</u>								<u>1,244,024</u>	
Total	4,575,030	6.0							4,575,030	6.0
<b>Other Operating expenses</b>	200,888	20.9							200,888	20.9
Undercoverage estimate	<u>73,589</u>	...							<u>73,589</u>	...
<b>Total Operating expenses</b>	<b>4,849,507</b>	<b>4.9</b>							<b>4,849,507</b>	<b>4.9</b>
<b>Operating profit</b>	<b>1,117,412</b>	<b>(13.7)</b>							<b>1,117,412</b>	<b>(13.7)</b>
% of operating revenues	18.7	(14.5)							18.7	(14.5)
<b>Capital expenditures</b>										
Total Capital expenditures	1,152,674	48.6							1,152,674	48.6
% of operating revenues	19.3	47.4							19.3	47.4
per capita (\$)	37.34	47.4							37.34	47.4
<b>Employment (persons)</b>										
Total Full-time	64,569	(0.6)							...	...
Total Part-time	<u>9,198</u>	(6.3)							...	...
Total Employment	73,767	(1.3)							...	...
% of national industrial employment	0.587								...	...
Total Full-time equivalents (FTE)	69,239								...	...
Revenue (\$) per FTE employee	86,178								...	...
<b>Labour costs<sup>1</sup></b>										
Total Full-time	1,127,609								1,127,609	
Total Part-time	<u>81,563</u>								<u>81,563</u>	
Total Labour costs	1,209,172	4.0							1,209,172	4.0
Average Labour costs (\$) per FTE employee (annualized)	69,855								...	

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

TABLE 4 continued...

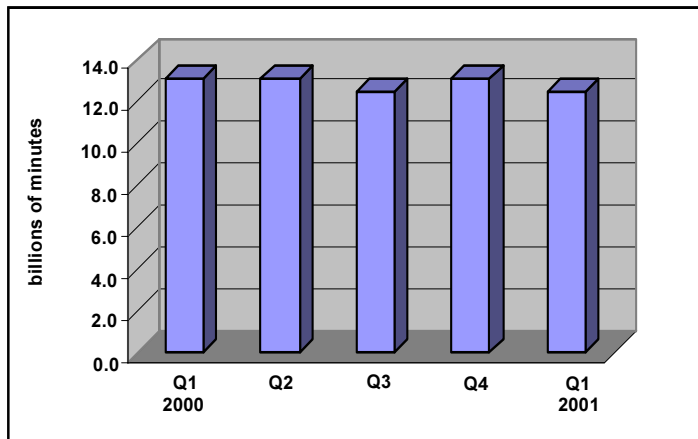
Wired Telecommunications (NAICS 51331)	First Quarter		Second Quarter		Third Quarter		Fourth Quarter		Year to date	
		01/00 %		01/00 %		01/00 %		01/00 %		01/00 %
<b>Network infrastructure (access)</b>										
<b>PSTN access lines</b>										
Individual lines (includes PBX)	15,749,892	0.6							...	...
Party lines	85,617	(14.3)							...	...
ISDN BRA	83,359	1.2							...	...
ISDN PRA	33,284	17.2							...	...
Public telephones	170,331	(3.2)							...	...
Centrex	2,513,912	5.3							...	...
Other (includes mobile and WATS)	542,948	(6.8)							...	...
Undercoverage estimate	<u>269,896</u>	...							...	...
<b>Total PSTN access lines</b>	<b>19,449,239</b>	<b>(1.9)</b>							...	...
Residential (%)	66.2								...	...
Business (%)	33.8								...	...
<b>Total PSTN voice-grade equivalents (VGE)</b>	<b>20,264,846</b>	<b>(1.3)</b>							...	...
Residential (%)	63.5								...	...
Business (%)	36.5								...	...
PSTN (VGE) per 100 inhabitants	65.6	(2.2)							...	...
Residential access lines (VGE) per 100 households	110								...	...
Business access lines (VGE) per 100 employed persons <sup>1</sup>	58.8								...	...
PSTN access paths (VGE) per FTE employee	293								...	...
<b>Non-PSTN lines<sup>2</sup></b>										
Digital	380,646								...	...
Analogue	<u>22,818</u>								...	...
<b>Total Non-PSTN lines</b>	<b>403,464</b>								...	...
<b>Traffic statistics (thousands of minutes)<sup>2</sup></b>										
Long distance traffic										
Outbound calls	9,970,302								9,970,302	
Toll-free calls	1,837,717								1,837,717	
Inbound calls to Canada	<u>667,399</u>								<u>667,399</u>	
Total Long distance	12,475,418	(5.0)							12,475,418	(5.0)
<b>Traffic performance (minutes)<sup>2</sup></b>										
Long distance traffic										
<b>Outbound calls</b>										
per access line (VGE)	499								499	
per capita	323								323	
<b>Toll-free calls</b>										
per access line (VGE)	92								92	
per capita	60								60	
<b>Inbound calls to Canada</b>										
per access line (VGE)	33								33	
per capita	22								22	
<b>Total Long distance</b>										
per access line (VGE)	624	(6.3)							624	(6.3)
per capita	404	(5.8)							404	(5.8)

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

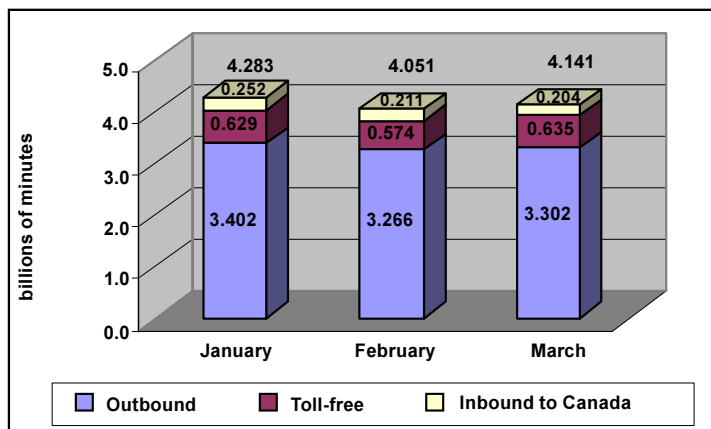


\* Calling features and connection charges.

**Figure 5.**  
Wired telecommunications operating revenue shares  
(Revenues \$ 5.19 billion)



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



**Figure 7.**  
Monthly wireline long distance minutes,  
first quarter, 2001  
Total outbound minutes 10.0 billion  
Total toll-free minutes 1.8 billion  
Total inbound to Canada minutes 667 million

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**Wireless Telecommunications Carriers  
(NAICS 51332)**

**Tables and Graphs**

**TABLE 5. Wireless Telecommunications Carriers (NAICS 51332), Quarterly, 2001**

Wireless Telecommunications (NAICS 51332)	First Quarter		Second Quarter		Third Quarter		Fourth Quarter		Year to date	
	\$000	01/00 %	\$000	01/00 %	\$000	01/00 %	\$000	01/00 %	\$000	01/00 %
<b>Operating revenues</b>										
<b>Telecommunications Operating revenues</b>										
Carrier services	136,181								136,181	
Local telephony										
Fixed (recurrent services)	635,907								635,907	
Air time (measured services)	251,937								251,937	
Other local telephony	<u>11,989</u>								<u>11,989</u>	
Total - Local telephony	899,833	11.1							899,833	11.1
Long Distance telephony										
Air time	100,006								100,006	
Other long distance telephony	<u>1,424</u>								<u>1,424</u>	
Total - Long Distance Telephony	101,430	4.5							101,430	4.5
Messaging - Paging	48,192								48,192	
Dispatch services (RCC)	14,457								14,457	
Other telecommunications services	<u>171,096</u>								<u>171,096</u>	
Total	1,371,189	21.0							1,371,189	21.0
<b>Other Operating revenues</b>	70,019	2.5							70,019	2.5
Undercoverage estimate	<u>30,626</u>	...							<u>30,626</u>	...
<b>Total Operating revenues</b>	<b>1,471,834</b>	<b>19.0</b>							<b>1,471,834</b>	<b>19.0</b>
<b>Revenue performance (\$) <sup>1</sup></b>										
Operating revenue per capita	47.68	18.0							47.68	18.0
Local revenue per subscriber	99.54	(11.8)							99.54	(11.8)
Average revenue per										
local minute (cents)	18.45	(15.8)							18.45	(15.8)
Long distance revenue per subscriber	11.22	(17.1)							11.22	(17.1)
Average revenue per										
long distance minute (cents)	18.03	(30.7)							18.03	(30.7)
Paging revenue per subscriber	34.16	(8.8)							34.16	(8.8)
<b>Operating expenses</b>										
<b>Telecommunications Operating expenses</b>										
Carrier services	161,565								161,565	
Labour expenses	185,926								185,926	
Depreciation	394,942								394,942	
Other telecommunications expenses	<u>689,054</u>								<u>689,054</u>	
Total	1,431,487	25.4							1,431,487	25.4
<b>Other Operating expenses</b>	89,667	7.0							89,667	7.0
Undercoverage estimate	<u>27,239</u>	...							<u>27,239</u>	...
<b>Total Operating expenses</b>	<b>1,548,393</b>	<b>22.8</b>							<b>1,548,393</b>	<b>22.8</b>
<b>Operating profit</b>	<b>(76,560)</b>	<b>(224.3)</b>							<b>(76,560)</b>	<b>(224.3)</b>
% of operating revenues	(5.2)	(172.6)							(5.2)	(172.6)
<b>Capital expenditures</b>										
Total Capital expenditures	1,094,102	347.3							1,094,102	347.3
% of operating revenues	74.3	275.9							74.3	275.9
per subscriber (\$)	120.41	255.1							120.41	255.1
per capita (\$)	35.44	343.6							35.44	343.6

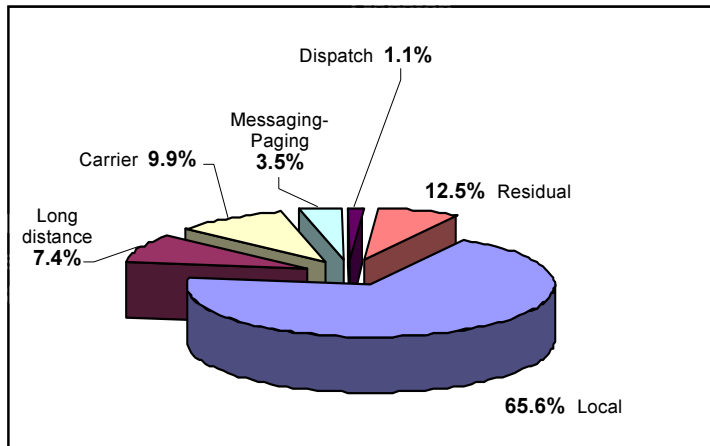
<sup>1</sup> Calculations do not include undercoverage estimates.

**TABLE 5 continued...**

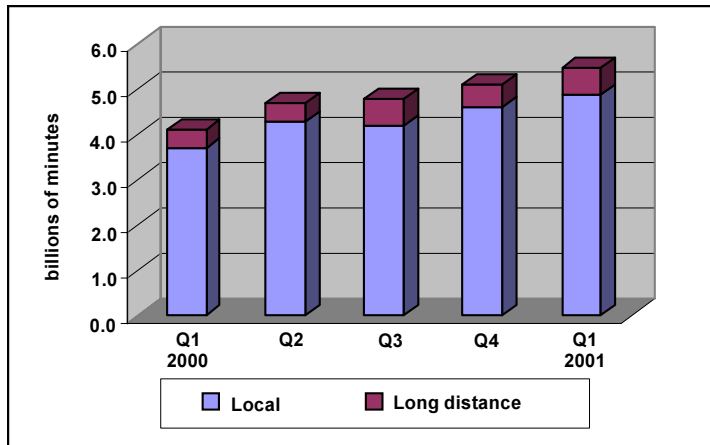
Wireless Telecommunications (NAICS 51332)	First Quarter		Second Quarter		Third Quarter		Fourth Quarter		Year to date	
		01/00 %		01/00 %		01/00 %		01/00 %		01/00 %
<b>Employment (persons)</b>										
Total Full-time	11,458	4.3							...	...
Total Part-time	<u>1,789</u>	(28.4)							...	...
Total Employment	13,247	(1.8)							...	...
% of national industrial employment	0.105								...	...
Total Full-time equivalents (FTE)	12,321								...	...
Revenue (\$) per FTE employee	119,461								...	...
<b>Labour costs (\$000)<sup>1</sup></b>										
Total Full-time	178,051								178,051	
Total Part-time	<u>13,405</u>								<u>13,405</u>	
Total Labour costs	191,455	(4.7)							191,455	(4.7)
Average Labour costs (\$) per FTE employee (annualized)	62,158								...	...
<b>Network infrastructure (access)</b>										
<b>Mobile subscribers</b>										
Total - Digital	5,067,755	73.2							...	...
Total - Analogue	<u>4,018,906</u>	(6.3)							...	...
<b>Total Mobile telephony</b>	<b>9,086,661</b>	<b>26.0</b>							...	...
Mobile telephony penetration										
per 100 inhabitants	29.4	24.6							...	...
PSTN access paths per FTE employee	738								...	...
<b>Paging subscribers</b>										
Total Paging	1,865,456	4.5							...	...
Paging penetration per 100 inhabitants	6.0	3.4							...	...
<b>Traffic statistics (thousands of minutes)</b>										
Billed minutes										
Local	4,876,222								4,876,222	
Long distance	<u>562,617</u>								<u>562,617</u>	
Total Billed minutes	5,438,839	33.6							5,438,839	33.6
<b>Traffic performance (minutes)<sup>2</sup></b>										
Local minutes per subscriber	539	4.7							539	4.7
Long distance minutes per subscriber	62	19.2							62	19.2
Billed minutes per subscriber	602	6.2							602	6.2

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

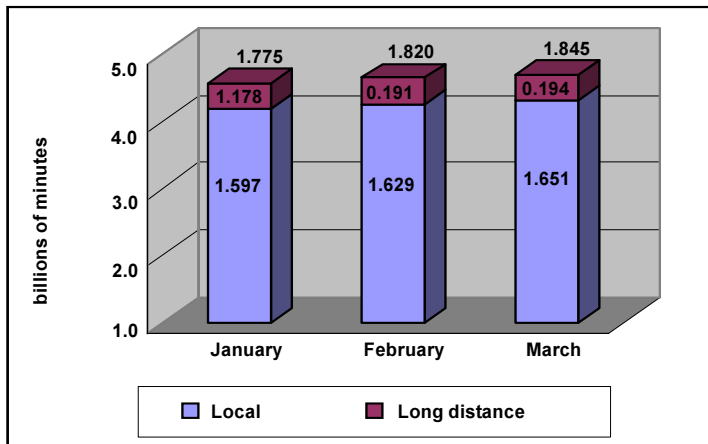
<sup>2</sup> Calculation does not include undercoverage estimate.



**Figure 8.**  
Wireless telecommunications operating revenue shares  
(Revenues \$1.37 billion)



**Figure 9.**  
Wireless traffic  
(Total billed minutes 5.4 billion)



**Figure 10.**  
Monthly wireless billed minutes,  
first quarter, 2001  
Wireless billed minutes increased to 5.4 billion in the first quarter of 2001, an increase of 33.6% from first quarter last year. The majority of these were local minutes (4.9 billion).

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

**Undercoverage Estimates**

**TABLE 6. Undercoverage estimates - Telecommunications Carriers (NAICS 51333, 51334, 51339), Quarterly, 2001**

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	397,324				397,324
Operating expenses	443,827				443,827
Operating profit margin	(46,503)				(46,503)
% of operating revenues	(11.7)				(11.7)
<b>Employment (persons)</b>					
Full-time	3,031				...
Part-time	<u>187</u>				...
Total Employment	3,218				...
% of national industrial employment	0.026				...
Total Full-time equivalents (FTE)	3,174				...
<b>Labour costs (\$000)</b>					
Full-time	76,614				76,614
Part-time	<u>3,610</u>				<u>3,610</u>
Total Labour costs	80,224				80,224

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## 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). Telecommunications service providers are classified to one of the five NAICS telecommunications industries (Wired, Wireless, Resellers, Satellite and Other<sup>1</sup>).

### Industrial Classification

The North American Industry Classification System (NAICS) was 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, 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 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 92.5% 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> *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.*

*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).*

*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.*

*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).*

Coverage rates for the 2001 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 (1999), taking into consideration buy-outs, mergers and consolidations since 1999, 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	98.6	1.4	100.0
51332	99.0	1.0	100.0
51333,4,9	-	100.0	100.0
5133	92.5	7.5	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 (Spring of 2002), 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 1999 annual data has been 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 2001 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 becomes 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.

For further information, or to enquire about the concepts, methods and data quality, please contact: Heidi Ertl (613) 951-1891, Haig McCarrell (613) 951- 5948 or Jo Anne Lambert (613) 951-6673, Science, Innovation and Electronic Information Division.

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*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.*

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## 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).

**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. 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.

**Average revenue per long distance minute.** Long distance operating revenues divided by long distance outbound minutes (including toll-free).

**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.

**Capital expenditures per subscriber.** Dollar amount of wireless capital expenditures for every wireless subscriber.

**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 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.

**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 circumstances, 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.

**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.

**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.

**Operating revenue per capita.** Industry operating revenue per person based on the quarterly population estimate.

**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.

**Paging revenue per subscriber.** Paging revenues per paging subscribers (does not include undercoverage estimate).

**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 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.

**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.