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HIGHLIGHTS

- ▶ Telecommunications operating revenues were \$8.19 billion in the third quarter. This was 1.5% above last quarter and 3.1% higher than the third quarter of 2000.
- ▶ Operating expenses (\$6.96 billion) increased by 4.7% from what was reported one year ago (\$6.64 billion). Third quarter 2001 operating profits (\$1.23 billion) decreased by 5.2% from the third quarter 2000 level (\$1.30 billion).
- ▶ Capital expenditures were in their third quarter of decline, but at \$1.50 billion, are still substantial. Capital spending was 16.9% and 27.4% of wireline and wireless operating revenues respectively.
- ▶ Wireline investment per capita fell by more than ten dollars to \$32.95, while per capita wireless capital expenditures fell two dollars to \$15.26 per capita.
- ▶ Since the third quarter of 2000, 1,901 full-time positions were added to the telecommunications industry, an increase of 2.4%. Of the 93,942 employees, there were 81,240 in full-time positions and 12,702 in part-time positions.
- ▶ Over 30.2 million voice-grade access paths were connected to the public-switched telephone network (PSTN). This consists of 9.9 million mobile access paths (cellular subscribers) and 20.3 million fixed access paths (19.4 million single access lines and 113,278 lines with multiple access).
- ▶ Strong growth in PSTN access has come mainly from mobile services. Mobile subscriptions increased 23.2% this quarter, from the third 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's **operating revenues**, reached \$8.19 billion in the third quarter of 2001 – an increase of 3.1% from third quarter, 2000. Facilities-based wireline telecommunications services accounted for 73.8% of total industry operating revenues, while wireless, resellers, satellite, and other services accounted for 26.2% of the third 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 have been relatively stable this year. Third quarter results (\$6.04 billion) are down 0.3% from last quarter, but 1.5% above the first quarter. Local services (\$1.77 billion) continued to represent the largest share (29.3%) of wireline operating revenues, followed by long distance services (\$1.16 billion / 19.1% of the total) and carrier services (\$859 million / 14.2% of the total).

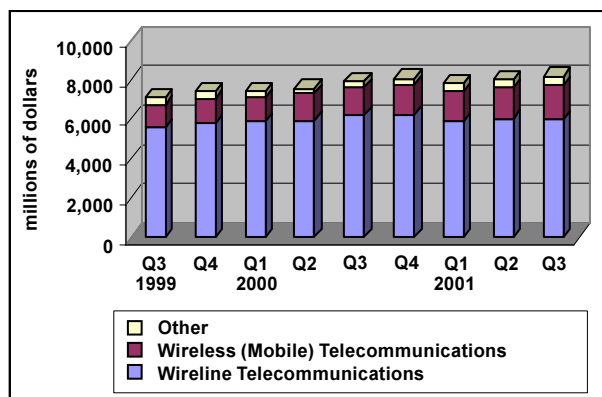
Operating revenues in the wireless industry have been far more buoyant than in the wireline industry. At \$1.73 billion this quarter, operating revenues are up 18.4% from last year and 8.2% from the previous quarter. As with wireline carriers, local services are the wireless industry's major source of revenues, but account for a greater share of total operating revenues (\$1.01 billion / 58.1%).

Operating profit totalled \$1.23 billion in the third quarter, or 15.0% 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 made a profit of 6 cents on each revenue dollar. 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 9 cents for each dollar earned this quarter.

Capital expenditures for the telecommunications industry were down for the third consecutive quarter – by 20.0% over the second quarter and by 9.4% over last year (Figure 2). The wireline and wireless industries still had substantial capital outlays of \$1.02 billion and \$474 million, respectively, representing 16.9% and 27.4% of third quarter operating revenues.

Figure 1.

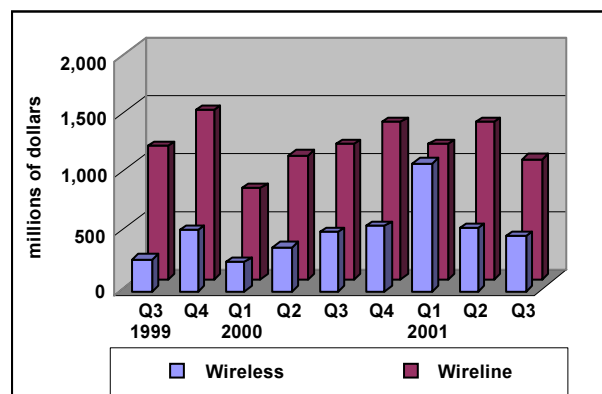
The dominance of wireline carriers vis-à-vis wireless service providers and resellers has been relatively unchanged over the previous 8 quarters. (Revenues \$8.19 billion)



Source: Quarterly Telecommunications Statistics.

Figure 2.

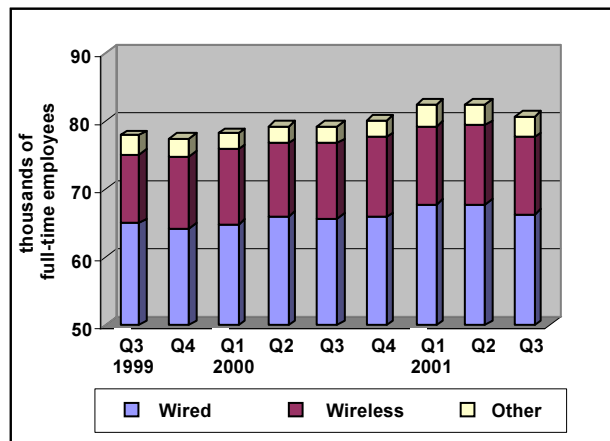
Capital expenditures in the wired industry declined in the third quarter of 2001 after expanding in the first and second quarters. Capital spending in the wireless industry is also falling – the dramatic increase in wireless investment in the first quarter of this year reflects spectrum auction purchases. (Capital expenditures \$1.50 billion)



Source: Quarterly Telecommunications Statistics.

Figure 3.
Full-time employment in the telecommunications industries has increased by 2.4% since third quarter, 2000.

There were 81,240 **full-time employees** this quarter. This represents a 1.6% decrease from the previous quarter, but a 2.4% increase from the third quarter of 2000 (a gain of 1,901 full-time employees) (Figure 3). Since the third quarter last year, 532 full-time positions were added to the wireline industry, while the wireless industry gained 712 full-time employees. The 'other' telecommunications industries gained 657 full-time employees over the same period. **Average annual labour costs** (wages, salaries and benefits) per employee (full-time equivalent) were up from the second quarter for the wireline industry (\$64,020), but down slightly for the wireless industry (\$61,554).



Source: Quarterly Telecommunications Statistics.

Public-switched telephone network (PSTN) **wireline access** was just under 19.5 million lines at the end of the third quarter, a decrease of 2.4% from last year's level. The quarter over quarter declines, reflected in each quarter this year, are a new phenomenon for the wireline industry. Recent access line growth in an otherwise saturated market can be attributed in part to increases in multiple access per household, but this may be coming to an end. This phenomenon may also be the early signs of wireless substitution for wireline services. Residential lines accounted for 66.0% of the total and business lines represented 34.0% 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 20.3 million lines, a 2.0% decrease from what was reported one year ago.

Text Table 1. PSTN Network Infrastructure - Wired Access

PSTN Access	Third Quarter, 2001		
	Residential	Business	Total
Wired Access Lines (NAICS 51331)			
Individual lines	12,598,394	3,121,828	15,720,222
Party lines	77,590	1,427	79,017
ISDN BRA	146	79,392	79,538
ISDN PRA	...	33,740	33,740
Public telephones	...	171,368	171,368
Centrex	...	2,604,572	2,604,572
Other	-	539,107	539,107
Undercoverage estimate	194,124	75,772	269,896
Total Wired Access Lines	12,870,254 (66.0%)	6,627,206 (34.0%)	19,497,460 (100.0%)
Total voice-grade equivalents	12,870,400 (63.3%)	7,448,878 (36.7%)	20,319,278 (100.0%)

Source: Quarterly Telecommunications Statistics, 3rd Quarter, 2001.

Third quarter mobile telephony subscribers were up 23.2% from last year and increased by 4.4% over last quarter. At quarter end, there were over 9.9 million subscribers, nearly one in every three Canadians. In contrast to wireline access, which is nearly all digital, only 63.1% of wireless access was digital, representing just over 6.2 million mobile subscribers (Text Table 2, Figure 4). The share of digital mobile subscribers, however, has been growing over the last few quarters.

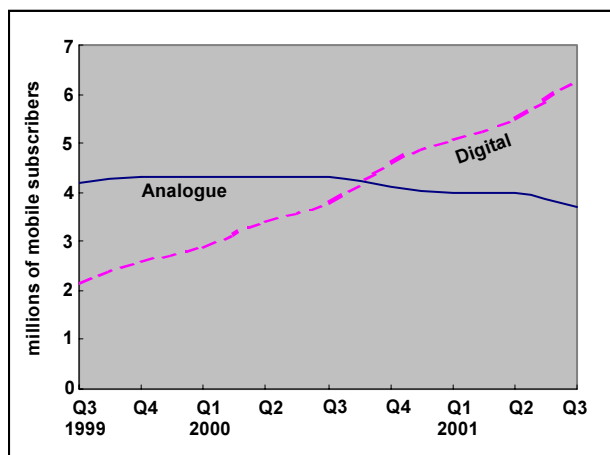
Teledensity measures the penetration of telecommunications services in a given population. For the wireline and wireless industries, there were 65.4 and 31.9 access paths (VGE) per 100 inhabitants, respectively. Total teledensity per 100 inhabitants was 97.3 in the third quarter, up 4.0% from last year's third quarter figure (Text Table 3).

Paging subscriptions have been decreasing over the last few quarters, perhaps due to the strong growth in cellular telecommunications, considered to be a substitute for paging. There were just over 1.8 million pagers in service in the third quarter, down from nearly 1.9 million subscribers in the second quarter. This is still a 0.9% increase over the third quarter of last year.

Long distance **traffic** is nearly completely undertaken via wireline access, which was down for the third consecutive quarter, to 12.0 billion minutes. About 6.0% of total wireline long distance minutes are originating from points outside Canada (Figure 6, page 19). Mobile telephony is primarily used for local communication. Total billed minutes rose substantially since the third quarter of 2000 (39.4%) to 6.7 billion, and increased by 6.4% from last quarter.

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	Third Quarter, 2001
Mobile Access (NAICS 51332)	
Digital	6,262,506
Analogue	3,661,389
Total Mobile Access	9,923,895

Source: Quarterly Telecommunications Statistics, 3rd Quarter, 2001.

Text Table 3. PSTN Network Infrastructure - Total Access

Teledensity	
Total PSTN Access Paths	29,421,355
Total PSTN Access Paths (VGE)	30,243,173
Wired Access (VGE) per 100 inhabitants	65.4
Wireless Access (VGE) per 100 inhabitants	31.9
Total PSTN Access VGE per 100 inhabitants	97.3

Source: Quarterly Telecommunications Statistics, 3rd 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 %
Financial indicators (\$000)										
Operating revenues	7,822,000	5.3	8,069,482	6.3	8,189,215	3.1			24,080,697	4.9
Operating expenses	6,824,719	11.0	6,710,075	6.3	6,957,635	4.7			20,492,428	7.3
Operating profit	997,280	(22.2)	1,359,407	6.4	1,231,581	(5.2)			3,588,269	(7.0)
% of operating revenues	12.7	(26.1)	16.8	0.1	15.0	(8.0)			14.9	(11.3)
Capital expenditures ¹	2,245,995	120.2	1,870,872	30.8	1,498,401	(9.4)			5,615,268	36.8
Employment (persons)										
Full-time	82,435	5.2	82,526	4.2	81,240	2.4			...	...
Part-time	<u>11,894</u>		<u>12,923</u>		<u>12,702</u>				...	...
Total Employment	94,329		95,449		93,942				...	...
% of national industrial employment ²	0.751		0.747		0.731				...	...
Total Full-time equivalents (FTE)	88,328		88,928		88,010				...	...
Labour costs										
Total Labour costs (\$000)	1,480,583		1,392,978		1,421,859				4,295,421	
Average Labour costs (\$) per FTE employee (annualized)	69,705		66,100		65,604				...	
PSTN access paths (fixed and mobile)										
Total fixed lines and mobile subscribers	28,535,771	5.5	28,860,847	4.9	29,421,355	5.0			...	...
Total voice-grade equivalents (VGE)	29,351,378	5.8	29,682,663	5.1	30,243,173	5.0			...	...
Teledensity (VGE per 100 inhabitants)	95.0	4.7	95.9	4.0	97.3	4.0			...	...

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

¹ Comprises 51331 (Wireline) and 51322 (Wireless) only.

² 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. Telecommunications Industries Summary, First Quarter, 2001

NAICS industries	51331	51332	51333, 4, 9	5133
thousands of dollars				
Operating revenues				
Telecommunications operating revenues	5,177,214	1,371,189	..	..
Other operating revenues ¹	693,266	70,019	..	..
Undercoverage estimate	<u>83,076</u>	<u>30,626</u>	<u>396,610</u>	<u>510,312</u>
Total operating revenues	5,953,556	1,471,834	396,610	7,822,000
% of total industry	76.1	18.8	5.1	100.0
Operating expenses				
Telecommunications operating expenses	4,559,367	1,431,487	..	..
Other operating expenses	200,888	89,667	..	..
Undercoverage estimate	<u>73,348</u>	<u>27,239</u>	<u>442,724</u>	<u>543,310</u>
Total operating expenses	4,833,603	1,548,393	442,724	6,824,719
% of total industry	70.8	22.7	6.5	100.0
Operating profit				
	1,119,954	(76,560)	(46,114)	997,280
% of operating revenues	18.8	(5.2)	(11.6)	12.7
Non-operating revenues and expenses (survey units only)				
Non-operating revenues	580,236	(2,975)	..	..
Non-operating expenses				
Interest expenses	452,179	194,205	..	..
Other	<u>(740)</u>	<u>18,402</u>	..	..
Total Non-operating expenses	451,439	212,607	..	..
Net income before taxes				
	1,248,751	(292,142)	..	..
EBITDA ²	2,129,774	318,382	..	..
Capital expenditures				
Total Capital expenditures	1,151,893	1,094,102	..	..
% of operating revenues	19.3	74.3	..	..
Employment (persons)				
Total Full-time	67,816	11,458	3,161	82,435
Total Part-time	<u>9,906</u>	<u>1,789</u>	<u>199</u>	<u>11,894</u>
Total Employment	77,722	13,247	3,360	94,329
% of national industrial employment	0.619	0.105	0.027	0.751
Total Full-time equivalents (FTE)	72,698	12,321	3,309	84,963
Labour costs				
Total Full-time	1,127,725	178,051	76,621	1,382,396
Total Part-time	<u>81,186</u>	<u>13,405</u>	<u>3,596</u>	<u>98,187</u>
Total Labour costs	1,208,911	191,455	80,217	1,480,583
Average Labour costs (\$) per FTE employee (annualized)	66,517	62,158	..	69,705

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

² EBITDA - Earnings Before Interest, Taxes, Depreciation and Amortization.

TABLE 2B. Telecommunications Industries Summary, Second Quarter, 2001

NAICS industries	51331	51332	51333, 4, 9	5133
thousands of dollars				
Operating revenues				
Telecommunications operating revenues	5,249,926	1,488,222	..	..
Other operating revenues ¹	726,688	77,663	..	..
Undercoverage estimate	<u>84,578</u>	<u>33,275</u>	<u>409,130</u>	<u>526,983</u>
Total operating revenues	6,061,192	1,599,160	409,130	8,069,482
% of total industry	75.1	19.8	5.1	100.0
Operating expenses				
Telecommunications operating expenses	4,520,568	1,348,316	..	..
Other operating expenses	212,781	94,348	..	..
Undercoverage estimate	<u>72,933</u>	<u>25,834</u>	<u>435,295</u>	<u>534,062</u>
Total operating expenses	4,806,282	1,468,498	435,295	6,710,075
% of total industry	71.6	21.9	6.5	100.0
Operating profit				
	1,254,910	130,662	(26,165)	1,359,407
% of operating revenues	20.7	8.2	(6.4)	16.8
Non-operating revenues and expenses (survey units only)				
Non-operating revenues	220,351	4,737	..	..
Non-operating expenses				
Interest expenses	469,297	186,142	..	..
Other	<u>77,669</u>	<u>12,611</u>	..	..
Total Non-operating expenses	546,966	198,753	..	..
Net income before taxes				
	928,295	(63,354)	..	..
EBITDA ²	2,285,811	457,447	..	..
Capital expenditures				
Total Capital expenditures	1,336,619	534,253	..	..
% of operating revenues	22.1	33.4	..	..
Employment (persons)				
Total Full-time	67,804	11,557	3,165	82,526
Total Part-time	<u>10,427</u>	<u>2,280</u>	<u>216</u>	<u>12,923</u>
Total Employment	78,231	13,837	3,381	95,449
% of national industrial employment	0.613	0.108	0.026	0.747
Total Full-time equivalents (FTE)	72,872	12,730	3,326	88,928
Labour costs				
Total Full-time	1,041,184	180,352	71,671	1,293,207
Total Part-time	<u>77,817</u>	<u>18,300</u>	<u>3,654</u>	<u>99,771</u>
Total Labour costs	1,119,001	198,652	75,325	1,392,978
Average Labour costs (\$) per FTE employee (annualized)	63,967	62,292	..	66,100

¹ Other includes: terminal equipment rentals; sale of telecommunications goods; directory services; retail internet access; installations; customer repairs and maintenance, etc.² EBITDA - Earnings Before Interest, Taxes, Depreciation and Amortization.

TABLE 2C. Telecommunications Industries Summary, Third Quarter, 2001

NAICS industries	51331	51332	51333, 4, 9	5133
thousands of dollars				
Operating revenues				
Telecommunications operating revenues	5,203,917	1,614,891	..	..
Other operating revenues ¹	754,998	79,905	..	..
Undercoverage estimate	<u>84,328</u>	<u>36,014</u>	<u>415,162</u>	<u>535,504</u>
Total operating revenues	6,043,243	1,730,810	415,162	8,189,215
% of total industry	73.8	21.1	5.1	100.0
Operating expenses				
Telecommunications operating expenses	4,601,024	1,499,377	..	..
Other operating expenses	207,512	95,728	..	..
Undercoverage estimate	<u>74,091</u>	<u>28,563</u>	<u>451,339</u>	<u>553,994</u>
Total operating expenses	4,882,627	1,623,668	451,339	6,957,635
% of total industry	70.2	23.3	6.5	100.0
Operating profit				
	1,160,615	107,142	(36,176)	1,231,581
% of operating revenues	19.2	6.2	(8.7)	15.0
Non-operating revenues and expenses (survey units only)				
Non-operating revenues	189,785	3,456	..	..
Non-operating expenses				
Interest expenses	465,760	164,497	..	..
Other	<u>1,097,679</u>	<u>5,781</u>	..	..
Total Non-operating expenses	1,563,439	170,278	..	..
Net income before taxes				
	(213,039)	(59,680)	..	..
EBITDA ²	2,165,235	452,885	..	..
Capital expenditures				
Total Capital expenditures	1,024,091	474,310	..	..
% of operating revenues	16.9	27.4	..	..
Employment (persons)				
Total Full-time	66,277	11,848	3,115	81,240
Total Part-time	<u>9,999</u>	<u>2,491</u>	<u>212</u>	<u>12,702</u>
Total Employment	76,276	14,339	3,327	93,942
% of national industrial employment	0.593	0.112	0.026	0.731
Total Full-time equivalents (FTE)	71,342	13,383	3,285	88,010
Labour costs				
Total Full-time	1,062,562	178,234	72,804	1,313,599
Total Part-time	<u>81,208</u>	<u>23,087</u>	<u>3,965</u>	<u>108,260</u>
Total Labour costs	1,143,770	201,321	76,768	1,421,859
Average Labour costs (\$) per FTE employee (annualized)	64,020	61,554	..	65,604

¹ Other includes: terminal equipment rentals; sale of telecommunications goods; directory services; retail internet access; installations; customer repairs and maintenance.² EBITDA - Earnings Before Interest, Taxes, Depreciation and Amortization.

Table 2D. Telecommunications Industries Summary, Year to Date, 2001

NAICS industries	51331	51332	51333, 4, 9	5133
thousands of dollars				
Operating revenues				
Telecommunications operating revenues	15,631,057	4,474,302	..	..
Other operating revenues ¹	2,174,952	227,587	..	..
Undercoverage estimate	<u>251,983</u>	<u>99,915</u>	<u>1,220,902</u>	<u>1,572,799</u>
Total operating revenues	18,057,992	4,801,804	1,220,902	24,080,697
% of total industry	75.0	19.9	5.1	100.0
Operating expenses				
Telecommunications operating expenses	13,680,959	4,279,180	..	..
Other operating expenses	621,181	279,743	..	..
Undercoverage estimate	<u>220,372</u>	<u>81,636</u>	<u>1,329,357</u>	<u>1,631,365</u>
Total operating expenses	14,522,512	4,640,559	1,329,357	20,492,428
% of total industry	70.9	22.6	6.5	100.0
Operating profit				
	3,535,480	161,245	(108,456)	3,588,269
% of operating revenues	19.6	3.4	(8.9)	14.9
Non-operating revenues and expenses (survey units only)				
Non-operating revenues	990,372	5,218	..	..
Non-operating expenses				
Interest expenses	1,387,236	544,844	..	..
Other	<u>1,174,608</u>	<u>36,794</u>	..	..
Total Non-operating expenses	2,561,844	581,638	..	..
Net income before taxes				
	1,964,008	(415,175)	..	..
EBITDA ²	6,580,821	1,228,715	..	..
Capital expenditures				
Total Capital expenditures	3,512,603	2,102,665	..	..
% of operating revenues	19.5	43.8	..	..
Employment (persons)				
Total Full-time	66,277	11,848	3,115	81,240
Total Part-time	<u>9,999</u>	<u>2,491</u>	<u>212</u>	<u>12,702</u>
Total Employment	76,276	14,339	3,327	93,942
% of national industrial employment	0.593	0.112	0.026	0.731
Total Full-time equivalents (FTE)	71,342	13,383	3,285	88,010
Labour costs				
Total Full-time	3,231,471	358,402	221,096	3,989,203
Total Part-time	<u>240,212</u>	<u>54,792</u>	<u>11,214</u>	<u>306,218</u>
Total Labour costs	3,471,683	591,428	232,310	4,295,421
Average Labour costs (\$) per FTE employee (annualized)	64,020	61,554	..	65,604

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

² EBITDA - Earnings Before Interest, Taxes, Depreciation and Amortization.

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

NAICS industries	51331				51332			
	I	II	III	IV	I	II	III	IV
Financial								
Operating revenue per capita (\$)	192.85	195.84	194.43		47.68	51.67	55.69	
Operating profit (% of operating revenues)	18.8	20.7	19.2		(5.2)	8.2	6.2	
Average revenue per long distance minute (cents) ¹	10.78	9.66	10.22		18.03	17.63	17.24	
Average revenue per local minute (cents)	...	...	...		18.45	16.35	16.89	
Capital expenditures per capita (\$)	37.31	43.19	32.95		35.44	17.26	15.26	
Capital expenditures (% of operating revenues)	19.3	22.1	16.9		74.3	33.4	27.4	
Employment/Labour								
Industry employment as a % of national industrial employment ²	0.619	0.613	0.593		0.105	0.108	0.112	
Revenue per FTE employee (\$)	81,895	83,176	84,708		119,461	125,624	129,332	
PSTN access paths per FTE employee	279	277	285		738	747	742	
Average Labour costs (\$) per FTE employee (annualized)	66,517	63,967	64,020		62,158	62,292	61,554	
Labour costs as a % of operating revenues	20.3	18.5	18.9		13.0	12.4	11.6	
Teledensity (VGE)								
PSTN access paths per 100 inhabitants	65.6	65.2	65.4		29.4	30.7	31.9	
Traffic^{1, 3}								
Local minutes per subscriber	...	...	...		539	614	603	
Local minutes per capita	...	...	...		158	188	192	
Long distance minutes per access path (VGE)	624	611	600		62	65	76	
Long distance minutes per capita	404	393	387		18	20	24	

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

² 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.

³ Calculations do not include undercoverage estimates.

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**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 %
Operating revenues										
Telecommunications Operating revenues										
Carrier services										
Contribution	226,393		243,992		246,242				716,627	
Interconnection	427,050		463,253		451,362				1,341,665	
Circuit rentals	18,464		41,211		42,717				102,392	
Other	<u>61,702</u>		<u>115,601</u>		<u>118,485</u>				<u>295,788</u>	
Total Carrier services	733,609	(3.4)	864,057	12.6	858,806	8.3			2,456,472	5.9
Voice services										
Local telephony	1,714,275	1.0	1,747,320	(0.8)	1,773,006	(1.6)			5,234,601	(0.5)
Long distance telephony	1,271,957	(7.7)	1,115,838	(18.3)	1,156,567	(16.5)			3,544,362	(14.1)
Calling features	290,832	8.9	296,442	21.8	294,470	19.2			881,744	16.4
Connection	<u>86,261</u>	(4.8)	<u>108,028</u>	15.3	<u>95,056</u>	(11.6)			<u>289,345</u>	(0.9)
Total Voice services	3,363,325	(2.0)	3,267,628	(5.7)	3,319,099	(6.3)			9,950,052	(4.7)
Data and high speed services										
Narrowband packet-switched	236,892		248,506		255,069				740,467	
High speed switched ¹	<u>282,493</u>		<u>296,231</u>		<u>221,025</u>				<u>799,749</u>	
Total Data and high speed services	519,385	26.5	544,737	22.2	476,094	(1.3)			1,540,216	15.1
Non-switched services (private lines)										
Narrowband	254,942		301,391		290,870				847,203	
High speed	<u>33,157</u>		<u>40,355</u>		<u>52,374</u>				<u>125,886</u>	
Total Non-switched services	288,099	18.9	341,746	44.2	343,244	34.7			973,089	32.6
Other telecommunications services	<u>272,796</u>		<u>231,758</u>		<u>206,674</u>				<u>711,228</u>	
Total	5,177,214	(0.4)	5,249,926	1.1	5,203,917	(3.4)			15,631,057	(0.9)
Other Operating revenues										
Terminal equipment rentals	70,710		74,269		65,531				210,510	
Sale of telecommunications goods	113,008		135,438		121,431				369,877	
Directory services	54,340		39,005		12,045				105,390	
Retail Internet services	87,825		117,987		175,656				381,468	
Other services n.e.c.	<u>367,383</u>		<u>359,989</u>		<u>380,335</u>				<u>1,107,707</u>	
Total	693,266	28.6	726,688	23.6	754,998	23.3			2,174,952	25.1
Undercoverage estimate ³	<u>83,076</u>	...	<u>84,578</u>	...	<u>84,328</u>	...			<u>251,983</u>	...
Total Operating revenues	5,953,556	0.6	6,061,192	1.7	6,043,243	(2.3)			18,057,992	(0.0)
Revenue performance² (\$)										
Operating revenue per capita	192.85	(0.2)	195.84	0.8	194.43	(3.4)			583.12	(1.0)
Voice services revenue per PSTN line	168.21	(3.4)	164.12	(6.5)	165.55	(6.8)			497.88	(5.6)
Local revenue per PSTN line	85.74	(0.4)	87.76	(1.6)	88.43	(2.2)			261.93	(1.4)
Long distance revenue per PSTN line	63.61	(9.0)	56.04	(18.9)	57.69	(17.0)			177.34	(15.0)
Average revenue per										
long distance minute(cents)	10.78	(7.0)	9.66	(15.6)	10.22	(18.2)			10.22	(13.6)
Advanced services ratio ³ (%)	25.3	20.5	26.9	28.7	24.8	14.8			25.7	21.2

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

TABLE 4 continued...

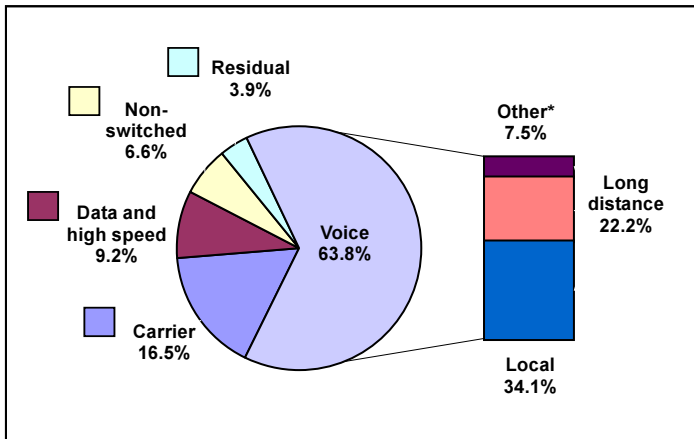
Wired Telecommunications (NAICS 51331)	First Quarter		Second Quarter		Third Quarter		Fourth Quarter		Year to date	
	\$000	01/00 %	\$000	01/00 %	\$000	01/00 %	\$000	01/00 %	\$000	01/00 %
Operating expenses										
Telecommunications Operating expenses										
Carrier services										
Contribution	260,699		293,041		279,229				832,969	
Interconnection	546,256		568,814		578,908				1,693,978	
Circuit rentals	184,288		191,680		178,082				554,050	
Other	<u>196,936</u>		<u>266,057</u>		<u>267,559</u>				<u>730,552</u>	
Total - Carrier services	1,188,179	(4.0)	1,319,592	(1.4)	1,303,778	(9.7)			3,811,549	(5.2)
Labour expenses	1,121,485	2.1	1,047,418	(3.3)	1,066,841	(3.8)			3,235,744	(1.7)
Depreciation	1,009,820	1.7	1,030,901	1.6	1,004,620	(2.1)			3,045,341	0.4
Other	<u>1,239,883</u>		<u>1,122,657</u>		<u>1,225,785</u>				<u>3,588,325</u>	
Total	4,559,367	5.6	4,520,568	1.8	4,601,024	(0.5)			13,680,959	2.3
Other Operating expenses	200,888	20.9	212,781	34.0	207,512	19.7			621,181	24.6
Undercoverage estimate	<u>73,348</u>	...	<u>72,933</u>		<u>74,091</u>				<u>220,372</u>	...
Total Operating expenses	4,833,603	4.6	4,806,282	1.4	4,882,627	(1.3)			14,522,512	1.5
Operating profit	1,119,954	(13.6)	1,254,910	3.0	1,160,615	(6.4)			3,535,480	(5.8)
% of operating revenues	18.8	(14.1)	20.7	1.3	19.2	(4.2)			19.6	(5.8)
EBITDA ¹	2,129,774	(6.9)	2,285,811	2.4	2,165,235	(4.4)			6,580,821	(3.0)
Capital expenditures										
Total Capital expenditures	1,151,893	48.5	1,336,619	26.4	1,024,091	(10.8)			3,512,603	17.8
% of operating revenues	19.3	47.6	22.1	24.3	16.9	(8.7)			19.5	17.8
per capita (\$)	37.31	47.2	43.19	25.3	32.95	(11.8)			113.78	16.8
Employment (persons)										
Total Full-time	67,816	4.4	67,804	2.8	66,277	0.8			...	...
Total Part-time	<u>9,906</u>	1.0	<u>10,427</u>	(4.4)	<u>9,999</u>	(1.8)			...	...
Total Employment	77,722	4.0	78,231	1.8	76,276	0.5			...	...
% of national industrial employment	0.619		0.613		0.593				...	...
Total Full-time equivalents (FTE)	72,698	3.5	72,872	1.7	71,342	(0.4)			...	...
Revenue (\$) per FTE employee	81,895		83,176		84,708				...	...
Labour costs²										
Total Full-time	1,127,725	4.9	1,041,184	(3.2)	1,062,562	(3.2)			3,231,471	(0.5)
Total Part-time	<u>81,186</u>	(7.6)	<u>77,817</u>	(15.9)	<u>81,208</u>	(16.8)			<u>240,212</u>	(13.6)
Total Labour costs	1,208,911	3.9	1,119,001	(4.2)	1,143,770	(4.3)			3,471,683	(1.5)
Average Labour costs (\$) per FTE employee (annualized)	66,517	0.4	63,967	(2.7)	64,020	(3.0)			...	...

¹ EBITDA - Earnings Before Interest, Taxes, Depreciation and Amortization.² 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 %
Network infrastructure (access)										
PSTN access lines										
Individual lines (includes PBX)	15,749,892	0.6	15,655,327	0.1	15,720,222	(0.2)			...	...
Party lines	85,617	(14.3)	82,578	(14.9)	79,017	(14.6)			...	...
ISDN BRA	83,359	1.2	81,010	(2.2)	79,538	(4.2)			...	...
ISDN PRA	33,284	17.2	33,673	15.4	33,740	9.1			...	...
Public telephones	170,331	(3.2)	172,300	(2.0)	171,368	(1.8)			...	...
Centrex	2,513,912	5.3	2,525,401	4.4	2,604,572	5.5			...	...
Other (includes mobile and WATS)	542,948	(6.8)	537,713	(6.5)	539,107	(4.1)			...	...
Undercoverage estimate	<u>269,896</u>	...	<u>269,896</u>		<u>269,896</u>				...	...
Total PSTN access lines	19,449,239	(1.9)	19,357,898	(2.4)	19,497,460	(2.4)			...	...
Residential (%)	66.2		66.1		66.0				...	...
Business (%)	33.8		33.9		34.0				...	...
Total PSTN voice-grade equivalents (VGE)										
Total PSTN voice-grade equivalents (VGE)	20,264,846	(1.3)	20,179,714	(1.9)	20,319,278	(2.0)			...	...
Residential (%)	63.5		63.4		63.3				...	...
Business (%)	36.5		36.6		36.7				...	...
PSTN (VGE) per 100 inhabitants	65.6	(2.2)	65.2	(2.8)	65.4	(3.0)			...	...
Residential access lines (VGE)									...	...
per 100 households	110		108		109				...	...
Business access lines (VGE)									...	...
per 100 employed persons ¹	58.8		57.9		57.9				...	...
PSTN access paths (VGE)									...	...
per FTE employee	279		277		285				...	...
Non-PSTN lines²										
Digital	283,962 ^r		286,921		292,118				...	...
Analogue	<u>22,818</u>		<u>22,241</u>		<u>20,488</u>				...	...
Total Non-PSTN lines	306,780^r		309,162		312,606				...	...
Traffic statistics (thousands of minutes)²										
Long distance traffic										
Outbound calls	9,964,486 ^r		9,745,225 ^r		9,584,566				29,294,277	
Toll-free calls	1,837,717		1,805,652		1,730,128				5,373,497	
Inbound calls to Canada	<u>670,131^r</u>		<u>619,900^r</u>		<u>720,688</u>				<u>2,010,719</u>	
Total Long distance	12,472,334 ^r	(5.1)	12,170,777 ^r	(7.4)	12,035,382	(3.5)			36,678,493	(5.4)
Traffic performance (minutes)²										
Long distance traffic										
Outbound calls										
per access line (VGE)	498		489		478				1,465	
per capita	323		315		308				946	
Toll-free calls										
per access line (VGE)	92		91		86				269	
per capita	60		58		56				174	
Inbound calls to Canada										
per access line (VGE)	34		31		36				101	
per capita	22		20		23				65	
Total Long distance										
per access line (VGE)	624	(6.3)	611	(8.3)	600	(4.2)			1,835	(6.3)
per capita	404	(5.8)	393	(8.4)	387	(4.7)			1,184	(6.3)

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



* Calling features and connection charges.

Figure 5.
Wired telecommunications operating revenue shares
(Revenues \$ 5.20 billion)

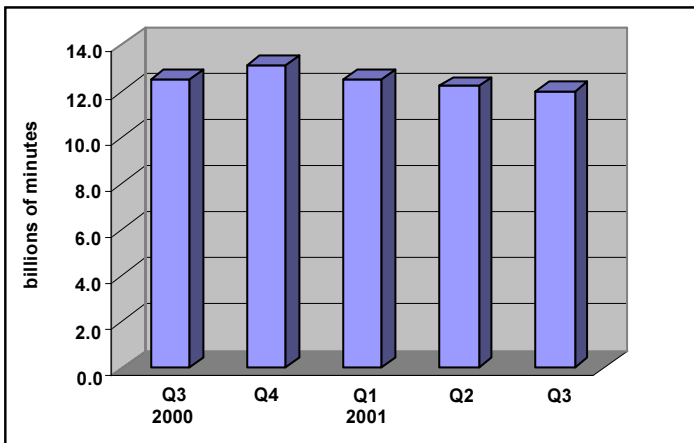


Figure 6.
Wireline traffic - Total long distance minutes
(12.0 billion)

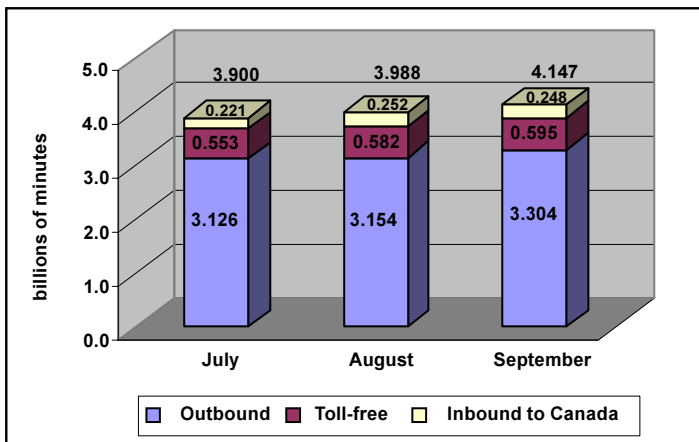


Figure 7.
Monthly wireline long distance minutes,
third quarter, 2001
Total outbound minutes 9.6 billion
Total toll-free minutes 1.7 billion
Total inbound to Canada minutes 721 million

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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 %
Operating revenues										
Telecommunications Operating revenues										
Carrier services	136,181		152,632		180,501				469,314	
Local telephony										
Fixed (recurrent services)	635,907		654,338		684,852				1,975,097	
Air time (measured services)	251,937		304,591		329,485				886,013	
Other local telephony	<u>11,989</u>		<u>(9,862)</u>		<u>(8,258)</u>				<u>(6,131)</u>	
Total Local telephony	899,833	11.1	949,067	8.9	1,006,079	8.5			2,854,979	9.5
Long Distance telephony										
Air time	100,006		106,802		126,637				333,445	
Other long distance telephony	<u>1,424</u>		<u>1,059</u>		<u>2,603</u>				<u>5,086</u>	
Total - Long Distance Telephony	101,430	4.5	107,861	7.9	129,240	12.8			338,531	8.6
Messaging - Paging	48,192		45,601		45,571				139,364	
Dispatch services (RCC)	14,457		15,757		15,979				46,193	
Other telecommunications services	<u>171,096</u>		<u>217,304</u>		<u>237,521</u>				<u>625,921</u>	
Total	1,371,189	21.0	1,488,222	21.3	1,614,891	20.9			4,474,302	21.1
Other Operating revenues	70,019	2.5	77,663	(10.0)	79,905	(4.5)			227,587	(4.5)
Undercoverage estimate	<u>30,626</u>	...	<u>33,275</u>	...	<u>36,014</u>	...			<u>99,915</u>	...
Total Operating revenues	1,471,834	19.0	1,599,160	18.3	1,730,810	18.4			4,801,804	18.5
Revenue performance (\$)¹										
Operating revenue per capita	47.68	18.0	51.67	17.2	55.69	17.1			155.04	17.4
Local revenue per subscriber	99.54	(11.8)	100.36	(11.9)	101.86	(11.9)			301.76	33.1
Average revenue per										
local minute (cents)	18.45	(15.8)	16.35	(18.6)	16.89	(22.9)			17.16	(19.3)
Long distance revenue per subscriber	11.22	(17.1)	11.41	(12.7)	13.08	(8.5)			35.71	34.2
Average revenue per										
long distance minute (cents)	18.03	(30.7)	17.63	(21.5)	17.24	(12.1)			17.59	(20.8)
Paging revenue per subscriber	34.16	(8.8)	32.35	(13.0)	33.28	(5.3)			99.79	33.7
Operating expenses										
Telecommunications Operating expenses										
Carrier services	161,565		182,563		207,743				551,871	
Labour expenses	185,926		192,938		195,220				574,084	
Depreciation	394,942		326,785		345,743				1,067,470	
Other telecommunications expenses	<u>689,054</u>		<u>646,030</u>		<u>750,671</u>				<u>2,085,755</u>	
Total	1,431,487	25.4	1,348,316	15.4	1,499,377	18.0			4,279,180	19.5
Other Operating expenses	89,667	7.0	94,348	(1.7)	95,728	(4.2)			279,743	0.0
Undercoverage estimate	<u>27,239</u>	...	<u>25,834</u>	...	<u>28,563</u>	...			<u>81,636</u>	...
Total Operating expenses	1,548,393	22.8	1,468,498	12.8	1,623,668	15.1			4,640,559	16.8
Operating profit	(76,560)	(224.3)	130,662	157.3	107,142	108.6			161,245	105.3
% of operating revenues	(5.2)	(172.6)	8.2	117.5	6.2	76.2			3.4	73.2
EBITDA²	318,382	24.0	457,447	34.7	452,885	27.9			1,228,715	29.3
Capital expenditures										
Total Capital expenditures	1,094,102	347.3	534,253	43.1	474,310	(6.0)			1,628,355	45.1
% of operating revenues	74.3	275.9	33.4	21.0	27.4	(20.6)			33.9	22.4
per subscriber (\$)	120.41	255.1	56.22	15.7	47.79	(23.7)			224.42	54.7
per capita (\$)	35.44	343.6	17.26	41.8	15.26	(7.0)			67.96	85.9

¹ Calculations do not include undercoverage estimates.

² EBITDA - Earnings Before Interest, Taxes, Depreciation and Amortization.

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 %
Employment (persons)										
Total Full-time	11,458	4.3	11,557	7.0	11,848	6.4			...	...
Total Part-time	<u>1,789</u>	(28.4)	<u>2,280</u>	(5.1)	<u>2,491</u>	11.4			...	...
Total Employment	13,247	(1.8)	13,837	4.8	14,339	7.2			...	...
% of national industrial employment	0.105		0.108		0.112				...	...
Total Full-time equivalents (FTE)	12,321	0.7	12,730	7.1	13,383	9.7			...	...
Revenue (\$) per FTE employee	119,461		125,624		129,332				...	...
Labour costs (\$000)¹										
Total Full-time	178,051	(1.3)	180,352	10.1	178,234	1.8			536,636	3.4
Total Part-time	<u>13,405</u>	(34.5)	<u>18,300</u>	10.8	<u>23,087</u>	38.1			<u>54,792</u>	2.0
Total Labour costs	191,455	(4.7)	198,652	10.2	201,321	5.0			591,428	3.2
Average Labour costs (\$) per FTE employee (annualized)	62,158		62,292		61,554				...	...
Network infrastructure (access)										
Mobile subscribers										
Total - Digital	5,067,755	73.2	5,532,514	64.7	6,262,506	66.8			...	...
Total - Analogue	<u>4,018,906</u>	(6.3)	<u>3,970,740</u>	(8.2)	<u>3,661,389</u>	(14.9)			...	...
Total Mobile telephony	9,086,532	26.0	9,502,949	23.7	9,923,895	23.2			...	...
Mobile telephony penetration per 100 inhabitants	29.4	24.6	30.7	22.3	31.9	21.8			...	...
PSTN access paths per FTE employee	738		747		742				...	...
Paging subscribers										
Total Paging	1,865,456	4.5	1,864,337	3.6	1,824,104	0.9			...	...
Paging penetration per 100 inhabitants	6.0	3.4	6.0	1.7	5.9	0.0			...	...
Traffic statistics (thousands of minutes)²										
Billed minutes										
Local	4,876,222		5,803,125		5,957,262				16,636,609	
Long distance	<u>562,617</u>		<u>611,878</u>		<u>749,729</u>				<u>1,924,224</u>	
Total Billed minutes	5,438,839	33.6	6,301,979	31.7	6,706,991	39.4			18,447,809	35.0
Traffic performance (minutes)²										
Local minutes per subscriber	539	4.7	614	8.1	603	14.4			1,756	9.1
Long distance minutes per subscriber	62	19.2	65	12.1	76	4.1			203	10.9
Billed minutes per subscriber	602	6.2	666	6.4	679	13.2			1,947	8.6

¹ Includes capitalized labour expenditures.² Calculation does not include undercoverage estimate.

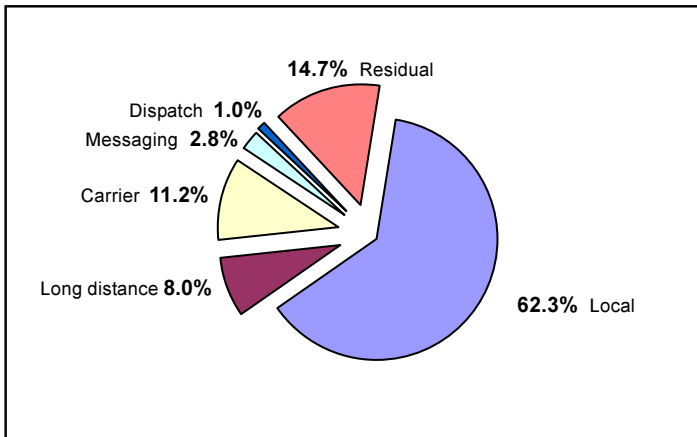


Figure 8.
Wireless telecommunications operating revenue shares
(Revenues \$1.61 billion)

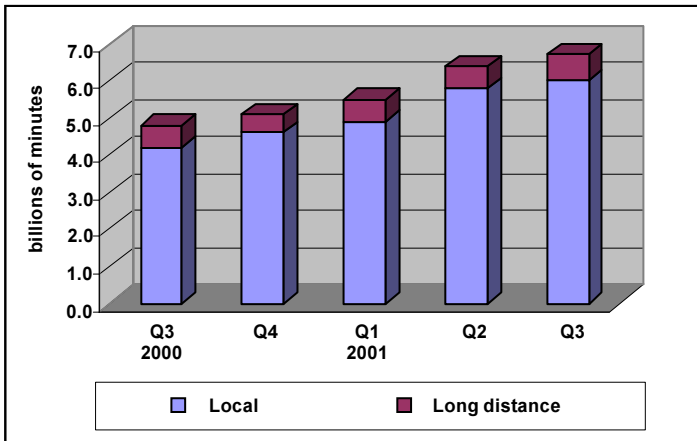


Figure 9.
Wireless traffic billed minutes
(\$6.7 billion)

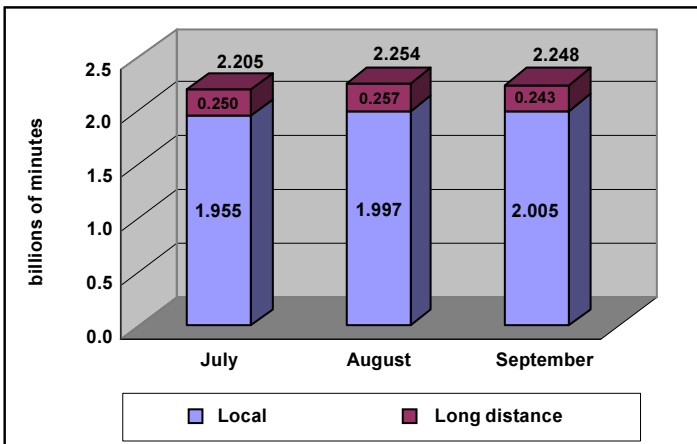


Figure 10.
Monthly wireless billed minutes,
third quarter, 2001
Wireless billed minutes increased to 6.7 billion in the third quarter of 2001, an increase of 39.4% from third quarter last year. The majority of these were local minutes (6.0 billion)

**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
Financial indicators (\$000)					
Operating revenues	396,610	409,130	415,162		1,220,902
Operating expenses	442,724	435,295	451,339		1,329,357
Operating profit margin	(46,114)	(26,165)	(36,176)		(108,456)
% of operating revenues	(11.6)	(6.4)	(8.7)		(8.9)
Employment (persons)					
Full-time	3,161	3,165	3,115		...
Part-time	<u>199</u>	<u>216</u>	<u>212</u>		...
Total Employment	3,360	3,381	3,327		...
% of national industrial employment	0.027	0.026	0.026		...
Total Full-time equivalents (FTE)	3,309	3,326	3,285		...
Labour costs (\$000)					
Full-time	76,621	71,671	72,804		221,096
Part-time	<u>3,596</u>	<u>3,654</u>	<u>3,965</u>		<u>11,214</u>
Total Labour costs	80,217	75,325	76,768		232,310

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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). There are 27 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 Other¹). 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 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.

¹ 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 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 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 first quarter 2001 estimates of Non-PSTN lines and first and second quarter 2001 wireline traffic statistics have been revised.

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.

Standards of service to the public

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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.

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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.).

Earnings before Interest, Taxes, Depreciation and Amortization (EBITDA). For this survey, this is calculated by summing operating profit and depreciation.

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.

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 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.

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 provider's 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.