

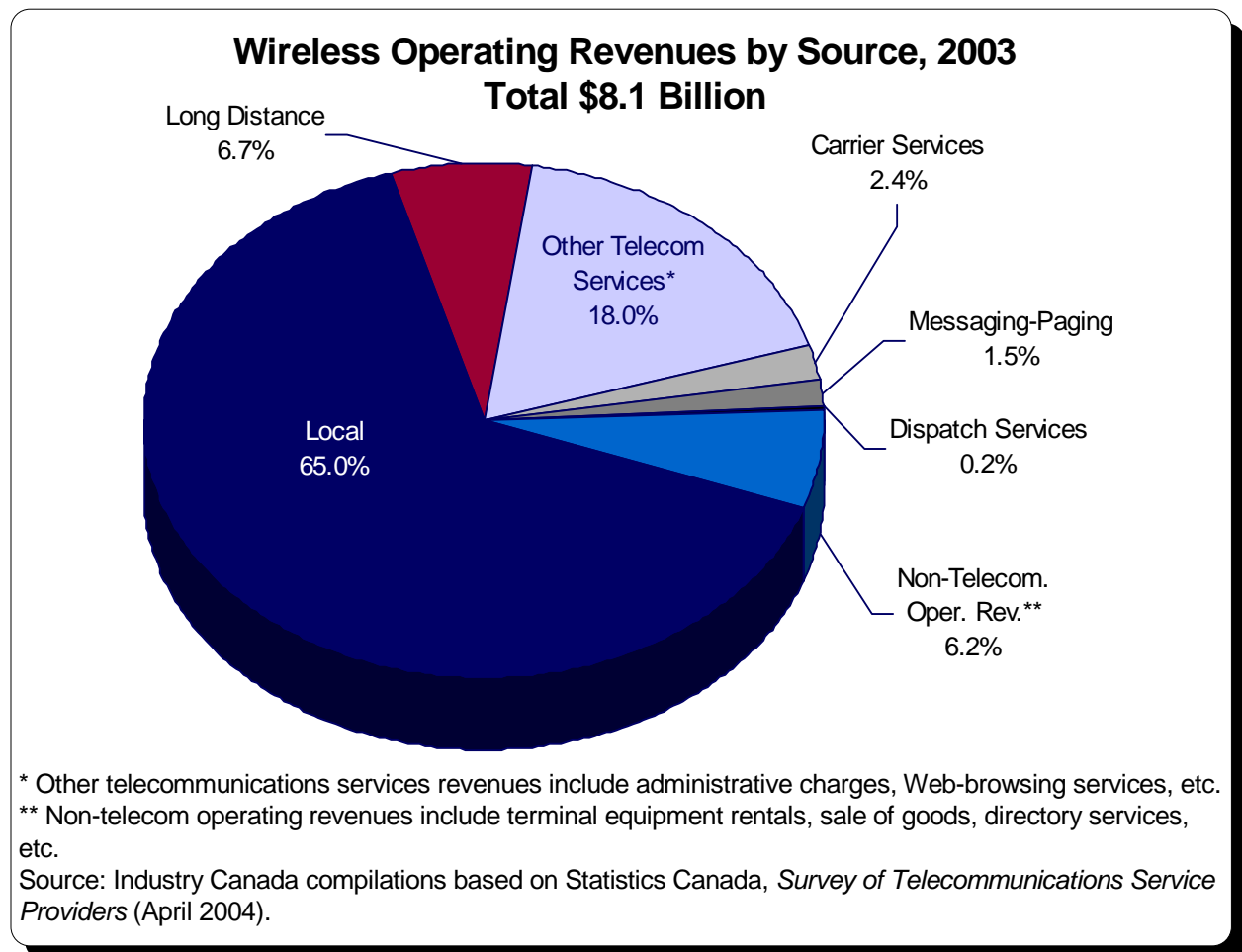
## 4.0 Advanced Telecommunications Services

The following section provides a detailed description of the advanced telecommunications services, including wireless and data/Internet services, that complement or act as substitutes for traditional wireline telephony. In addition, it examines the major participants in the wireless and data/Internet market segments as well as revenue trends and subscribers for each sector.

### 4.1 Wireless

The wireless market generated \$8.1 billion in revenues in 2003, which is up from \$7.2 billion in 2002. The wireless market segment is broken down into local and long distance telephony, carrier services, messaging-paging, dispatch, and other telecom and non-telecom services. The local wireless telephony segment accounted for 65 percent of the total in wireless telecommunications revenues generated in 2003 (Figure 4.1-1). Wireless long distance comprised 6.7 percent of total wireless revenue while messaging/paging and dispatch services made up 1.5 percent and 0.2 percent, respectively. ‘Other telecom services’, which consist of administrative charges and web browsing services, contributed 18 percent to total wireless revenues, while carrier services comprised 2.4 percent. Shares for all components of wireless operating revenues remained relatively stable, each changing by less than one percentage point except for ‘other telecom services’, which increased 2.4 points.

Figure 4.1-1



### 4.1.1 Wireless Services

The cellular/Personal Communication Service (PCS) market is among the most competitive segment in the telecommunications industry. The introduction of new competitors through the awarding of two national PCS licences in 1997 and the incumbents' expansion into one another's traditional markets has fuelled service innovation and price competition in the marketplace, with strong growth in the PCS market expected to continue over the next several years. In addition, advanced satellite services continue to provide both fixed and mobile telecommunications services to all regions in Canada. Coupled with these developments, new terrestrial high-speed services, such as Local Multipoint Communications Systems (LMCS) add new dimensions to the local competitive market by providing urban and rural business and residential customers with high-speed wireless access to advanced communication services.

Bell Canada and TELUS have continued to expand their respective wireless networks outside of their traditional territories, through network investments and reciprocal agreements. In October 2001, a reciprocal roaming and resale agreement was signed by the wireless units of Bell, TELUS, and Aliant expanding access to each other's networks. Bell Mobility's digital PCS service, for example, has access to TELUS Mobility's facilities in British Columbia and Alberta. Similarly, in November 2002, TELUS Mobility expanded its 1X wireless service in Ontario and Quebec through an enhanced reciprocal roaming/resale agreement with Bell Mobility, and in Atlantic Canada through an agreement with Aliant Mobility in March 2003. Through new investments in its network, Bell Mobility launched its code division multiple access (CDMA)<sup>1</sup> wireless network, which is capable of supporting wireless voice and data services, in urban centres in Alberta and British Columbia in September 2002, and began a \$250 million expansion of its 1X network in Western Canada. For its part, in March 2004, TELUS invested \$4.5 million to expand its 1X network in two rural regions in Quebec.

Canada's national and regional wireless service providers have upgraded their networks in an effort to evolve towards the 3G<sup>2</sup> standard, allowing for various data transmission services at higher transmission rates. On September 19, 2001, Microcell Telecommunications launched its upgraded GSM<sup>3</sup> network using the wireless general packet radio services<sup>4</sup> (GPRS) standard, and introduced 2.5G technology in Canada. GPRS supports flexible data transmission rates typically between 20 kbps and 40 kbps, as well as continuous connection to a network. In June 2002,

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<sup>1</sup> CDMA (Code Division Multiple Access) uses a digital coding scheme to differentiate between multiple users sharing the same wideband channel.

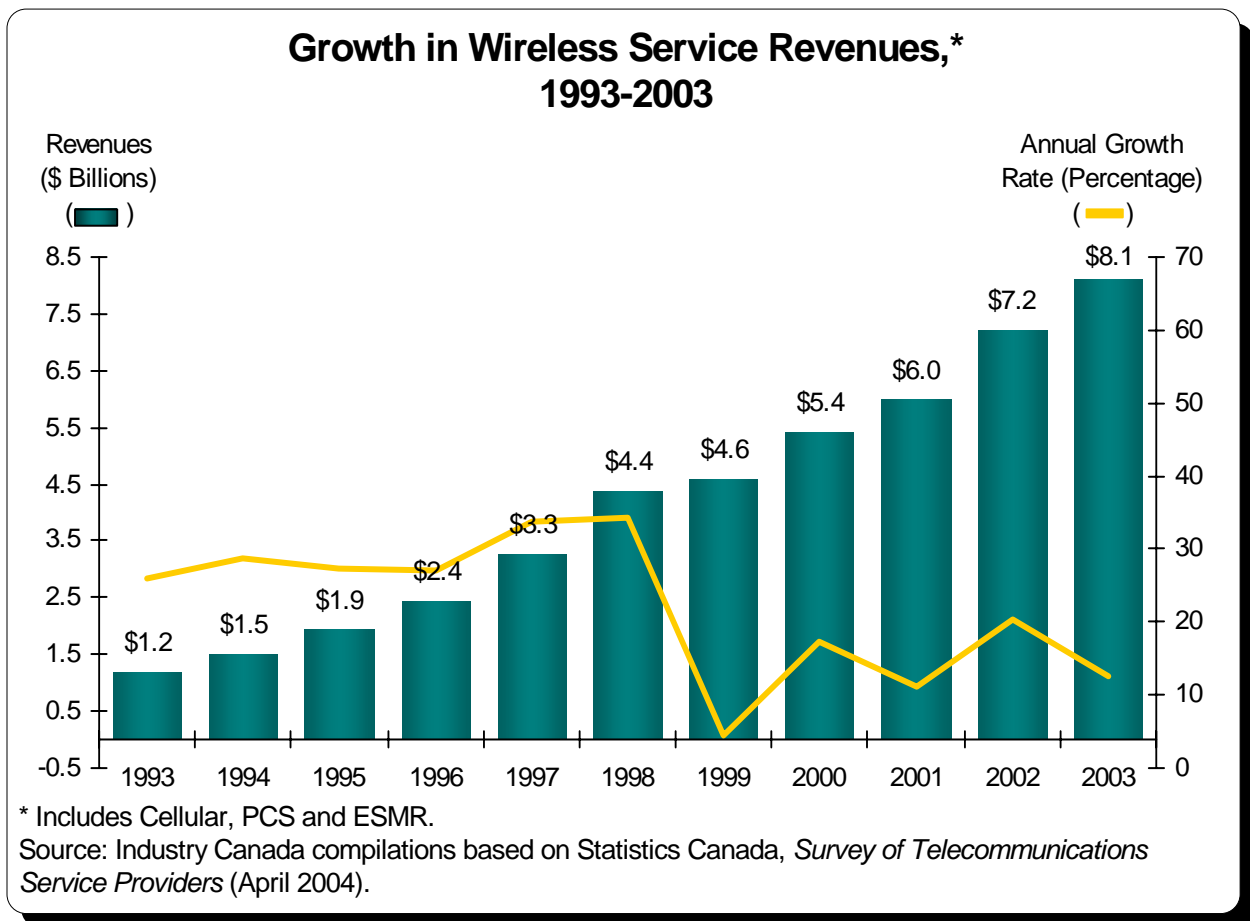
<sup>2</sup> G refers to "generation". 1G=analog; 2G=digital voice, some data services; 2.5G=more advanced data services with higher transmission rates; 3G=data rates from 348 kbps to 2 Mbps (high-speed mobile internet services).

<sup>3</sup> GSM (Global System for Mobile Communications) is a digital cellular network standard which uses Time Division Multiple Access technology combined with frequency division multiple access to accommodate multiple users in the same channel. It provides data rates of 9.6 kbps.

<sup>4</sup> GPRS (General Packet Radio Service) is a packet-based technology for data services on GSM networks with data rates of 115 kbps theoretically; 20-40 in practice.

Rogers Wireless AT&T<sup>5</sup> completed its digital GPRS network, offering integrated wireless voice and high-speed packet data services to 93 percent of the Canadian population. Employing a data technology called 1XR<sup>6</sup>, Bell Mobility and TELUS Mobility launched, in the spring of 2002, similar enhanced wireless data services in major cities across Canada, and in 2003 expanded coverage to rural areas in B.C., Alberta, Quebec, Ontario and Atlantic Canada. This technology currently operates at speeds of up to 144 kbps. Additionally, regional wireless operators Aliant Mobility, Sasktel Mobility and MTS Mobility all launched their respective 1X networks by the end of 2002. As the evolution to 3G standard continue, Rogers completed, in July 2004, the deployment of its EDGE technology (enhanced data rates for global evolution), a 3G radio technology that provides wireless data speeds that are up to three times faster than those provided by GPRS without the requirement of additional spectrum.

Figure 4.1-2



<sup>5</sup> Rogers AT&T Wireless re-branded itself as Rogers Wireless in December 2003.

<sup>6</sup> 1XR<sup>6</sup> (1 channel Radio Transmission Technology) is the first step in the evolution of CDMA2000 to 3G which provides high data-rate services.

Beginning in late 1996, consumer demand has been led by the continued expansion of cellular service areas and the introduction of digital PCS. While total wireless revenue increased to \$8.1 billion in 2003, its growth rate of 12.5 percent in 2003 was below the average annual growth rate of over 20 percent since 1992, as revenue growth has slowed over the past few years (Figure 4.1-2). As a result of diminishing revenue growth, the wireless service providers have recently made attempts to increase their revenues. In addition to switching to per-minute billing from the prior standard of per-second billing in 2002, in mid-2003 the leading wireless providers (Bell Mobility, TELUS Mobility, Rogers Wireless) delayed their evening start times from 6 p.m. to 8 p.m. in an effort to boost revenue per subscriber. In an effort to capture additional revenue streams, Microcell has entered into agreements with Sprint Canada in September 2003 and Primus Canada in July 2004 to offer wireless services on its network (See Table 4.1.1 for more on Microcell and its recent developments).

**Table 4.1.1****The Story of Microcell**

Microcell Telecommunications Inc. was first awarded a PCS license in October 1995 and began to offer wireless services through its Fido brand in November 1996. It became a public company in October 1997, competing with three other national wireless carriers: Bell Mobility, Rogers Cantel, and Clearnet (acquired by TELUS in 2000). Since the beginning, Microcell has offered innovative plans and services. For example, Microcell was the first to offer digital, prepaid PCS service, and launched City Fido in Vancouver in 2003 and in Toronto in 2004, a wireless plan with unlimited local minutes and number portability targeted at wireline consumers as a substitute for their traditional wireline telephone service. Microcell's urban focus and low-cost structure enabled the company to compete based on price and to acquire subscribers at an expeditious rate, reaching the one million mark only five years after its inception.

Under financial difficulty, Microcell began a recapitalization process in the fourth quarter of 2002, and emerged in May 2003 debt-free. Microcell's debt was restructured according to an agreement approved by its secured lenders and unsecured note holders which included a reduction of \$1.7 billion in debt and approximately \$200 million in annual interest through equity exchanges. During this period, the company consciously constrained growth in order to contain costs, and experienced a net loss in subscribers in the first quarter of 2003. In the third quarter of 2003, Microcell launched an aggressive marketing campaign in an effort to recover revenues and subscribers lost during its restructuring period, and this met with enormous success.

In May 2004, TELUS announced a takeover bid to purchase all of Microcell Telecommunications' outstanding shares and warrants for approximately \$1.1 billion. After reviewing TELUS' proposal, the majority of Microcell's shareholders elected not to accept the offer. In October 2004, TELUS announced that it would not extend its offer to purchase Microcell subsequent to the September 2004 offer from Rogers Wireless to purchase Microcell for \$1.4 billion. Two months later, Rogers Wireless announced the acquisition of Microcell Telecommunications, creating Canada's largest wireless carrier with a combined customer base of 5.5 million customers.

Aside from voice services, short messaging service (SMS), the first wireless data service to be offered, is one example of a data service that has seen a significant increase in usage. In November 2001, Canada's four national wireless carriers joined forces to offer SMS across all networks, a move that was the first of its kind in North America.<sup>7</sup> Furthermore, in January 2003, cross-border inter-carrier text messaging services were introduced, allowing consumers to exchange text messages between the United States and Canada. There has been a trend of steady growth in text message use since the technology was introduced. The Canadian Wireless Telecommunications Association (CWTA) reports that over 55 million mobile-to-mobile text messages were sent in Canada in May 2004, or 1.8 million daily, up from approximately 28 million in May 2003.<sup>8</sup>

The market for new services and technologies remains very competitive among wireless companies. In early 2003, TELUS Mobility partnered with Research in Motion (RIM) to offer RIM's Blackberry wireless platform on TELUS' 1X wireless data network, including wireless e-mail, phone capability, text messaging, and organizer applications. Similarly, Bell Mobility introduced an integrated wireless device that combined the features of a wireless phone, personal digital assistant (PDA), MP3 player and Internet browser. For its part, Microcell added a digital camera feature to its multi-functioning wireless tool that also included a wireless phone and PDA, and TELUS introduced a phone-to-phone picture messaging service. In early 2004, Rogers Wireless released the first palmOne smartphone on its GPRS network, and Bell Mobility released it subsequently on its CDMA 1X network. As evidence of more effort towards interoperability across networks, TELUS Mobility released GSM roaming-enabled CDMA and iDEN (integrated digital enhanced network) handsets. Such efforts, as well as the increased usage of data services among consumers, is expected to contribute to sustaining growth in the future.

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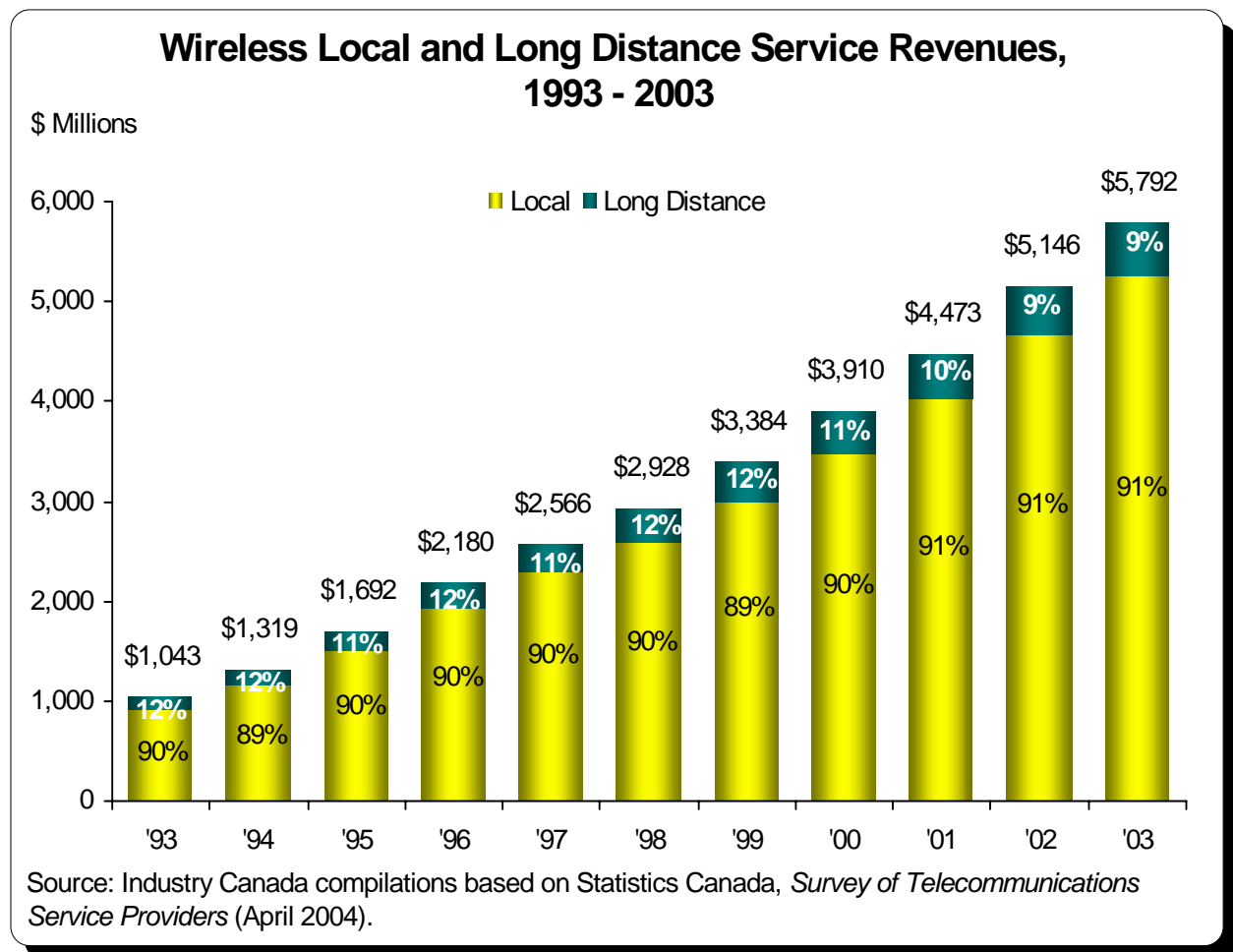
<sup>7</sup> Source: Showwei, Chu. "Cell phones to speak as one: four wireless firms [Bell Mobility, TELUS Mobility, Rogers Wireless Inc., Microcell Connexions] team up to offer text messaging services across all networks." *The Globe & Mail*, 7 Nov. 2001: B3.

<sup>8</sup> [Canadian Wireless Telecommunications Association Web site](http://www.cwta.ca), at [www.cwta.ca](http://www.cwta.ca), or the [CWTA's text messaging resource centre](http://www.txt.ca/facts.htm) at [www.txt.ca/facts.htm](http://www.txt.ca/facts.htm).

### 4.1.2 Local and Long Distance Revenues

Local wireless services continue to be the mainstay of the wireless industry as the \$5.1 billion in revenues contributed to 65 percent of the total revenues in 2003. Growth in local wireless revenues was 12.6 percent when compared to 2002, which was nearly equivalent to growth in the wireless sector as a whole. Alternatively, wireless long-distance continued to be a relatively insignificant source of revenue for the wireless service providers, accounting for only 6.7 percent of total wireless revenue in 2003 at \$544 million. Despite growth of 12.4 percent from 2002 to 2003, and an average annual growth rate of 15.8 percent over the previous 10 years, long distance revenues have been superseded by other wireless revenue streams. However, in the future, as more consumers substitute wireless technologies for their communications needs, wireless long distance revenues may become an increasingly important source of revenue (Figure 4.1-3).

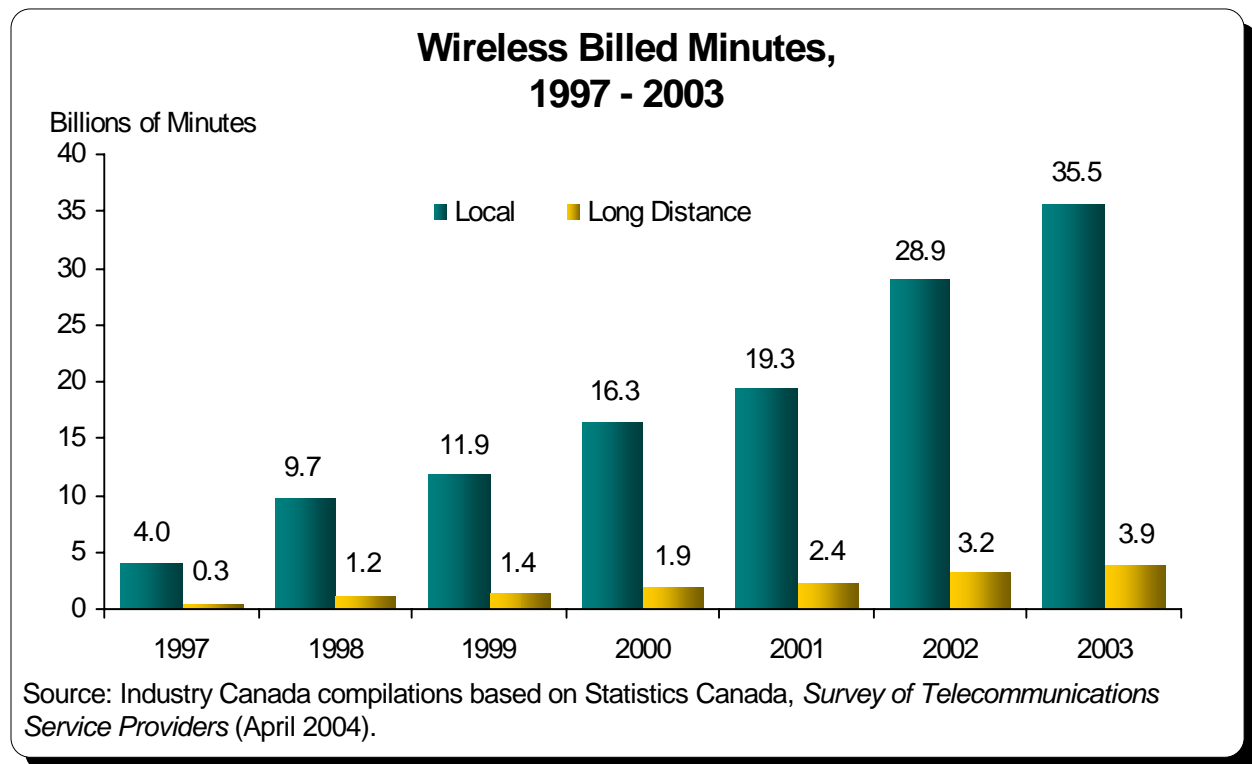
Figure 4.1-3



### 4.1.3 Traffic

Growth in wireless revenues can be partly attributed to billed minutes.<sup>9</sup> Total wireless billed minutes for the year increased by 23 percent when compared to 2002, to a total of 39.4 billion. The split between local and long distance remained relatively constant over the previous five years, with roughly 90 percent of wireless billed minutes attributed to local and the remaining 10 percent to long distance (Figure 4.1-4).<sup>10</sup> Since 1997, local and long distance wireless billed minutes both increased substantially, with compounded annual growth rates of 44 percent and 51 percent, respectively.

**Figure 4.1-4**



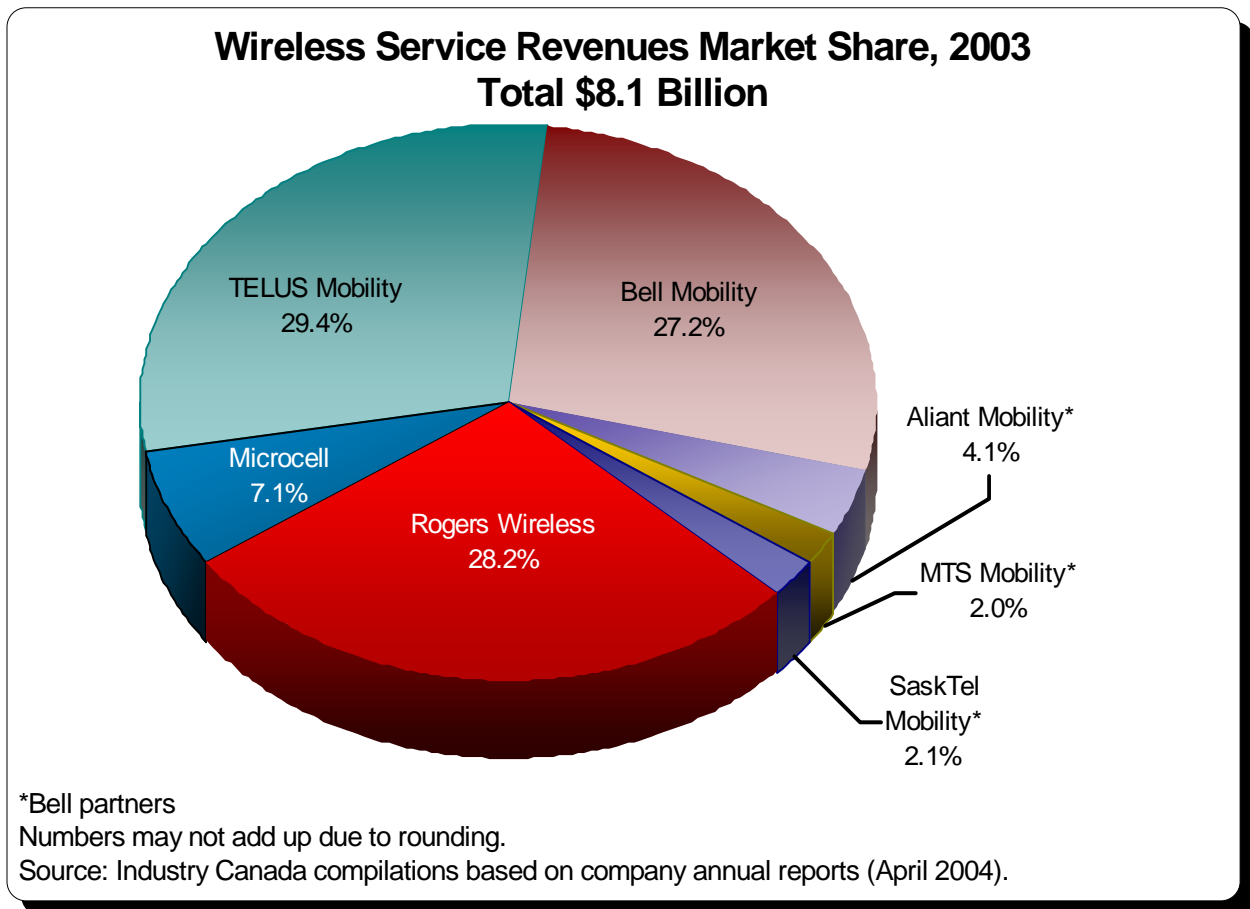
<sup>9</sup> Billed minutes = incoming + outgoing + other minutes.

<sup>10</sup> Outgoing minutes are not reported due to lack of survey response.

### 4.1.4 Market Share

In 2003, revenues in the wireless services market were \$8.1 billion, the majority of which was attributable to the ILECs wireless operating divisions. With \$2.4 billion in wireless revenues, TELUS Mobility had the greatest share of the market at 29 percent. Bell Mobility captured slightly over 27 percent of the wireless market with \$2.2 billion in revenues. The regional wireless service providers, including Aliant Mobility, MTS Mobility and SaskTel Mobility, had 4.1 percent (\$332 million), 2.0 percent (\$159 million) and 2.1 percent (\$167 million), respectively. Competitive wireless service providers, including Rogers Wireless and Microcell, respectively had 28 percent (\$2.3 billion) and 7.1 percent (\$571 million) of the wireless market in 2003 (Figure 4.1-5).

Figure 4.1-5



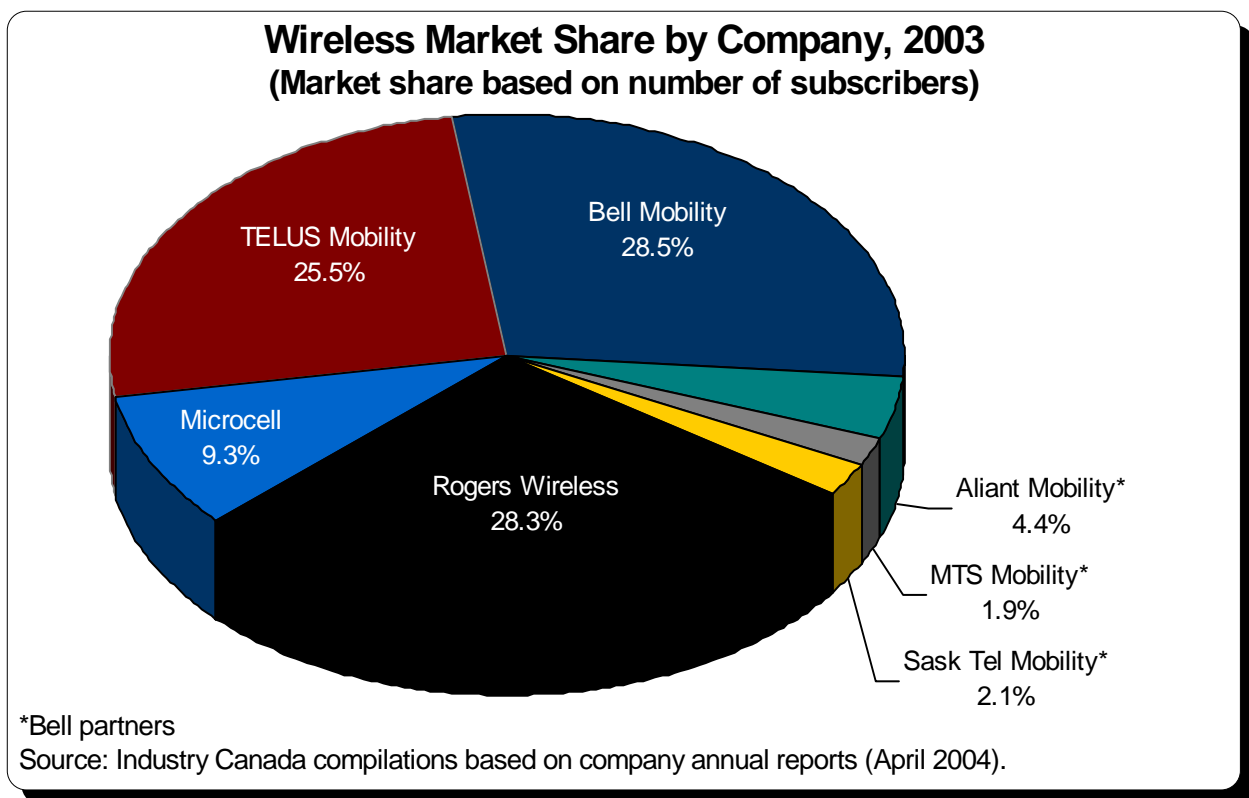
Compared to 2002, the largest change in market share was realized by Microcell, which saw its wireless market share decrease by 1.2 percentage points in 2003. This was due to Microcell’s financial restructuring which ended in May 2003, during which marketing expenses and customer acquisition efforts were scaled back. Microcell’s loss of market share was evenly gained across TELUS Mobility and Rogers Wireless, with increases of 0.7 and 0.5 percentage points, respectively. The market shares held by the other wireless companies remained relatively stable, when compared to 2002.



### 4.1.5 Subscribers

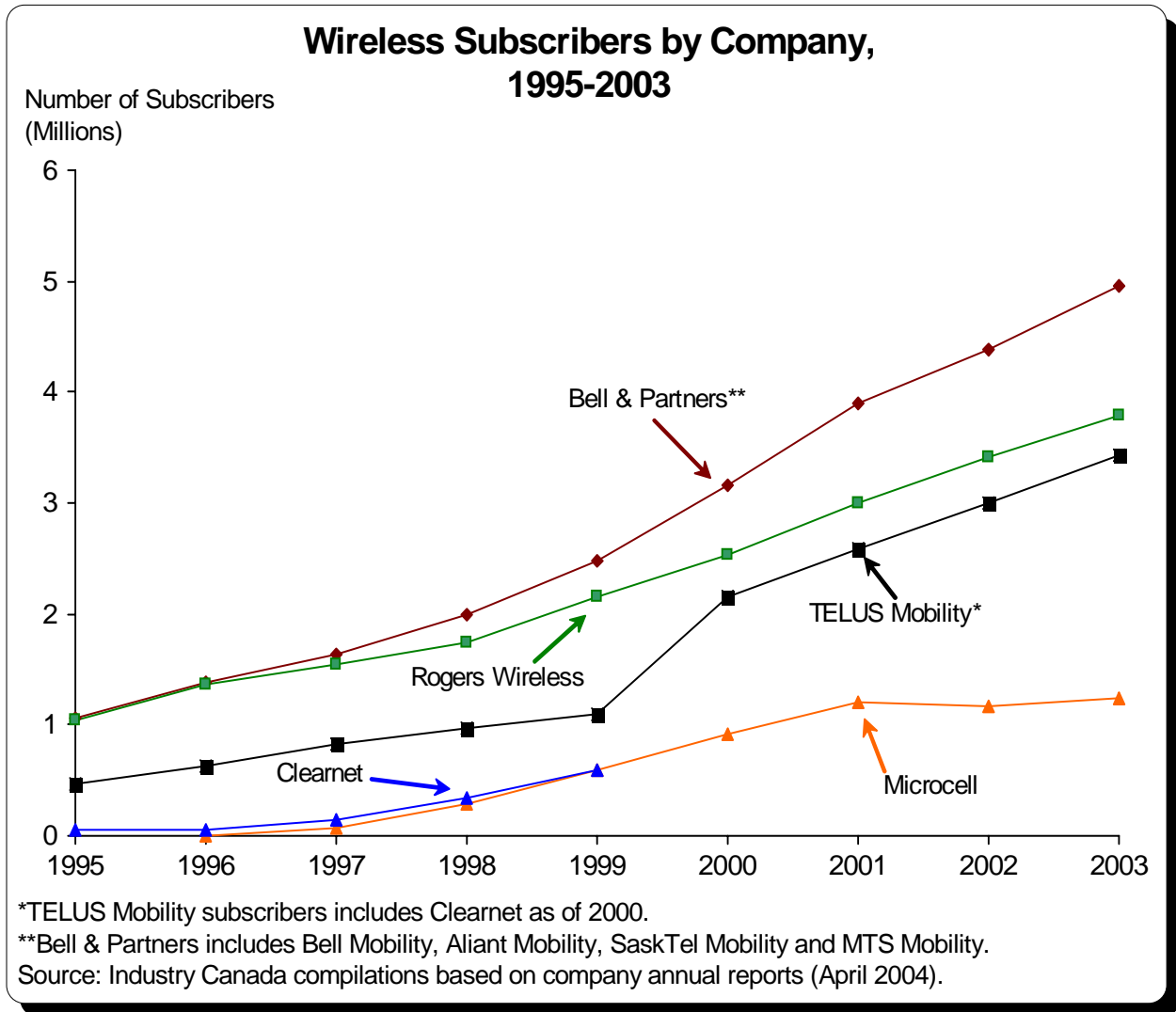
There were 13.4 million mobile (wireless) subscribers at the end of 2003, equivalent to nearly 45 percent of the population. Of the four national wireless service providers in Canada, Bell Mobility had slightly more subscribers than Rogers Wireless in 2003, as each company had market shares of over 28 percent. TELUS Mobility had 26 percent of the total subscribers, while Microcell had 9.3 percent. The regional wireless service providers, Aliant Mobility, SaskTel Mobility and MTS Mobility had wireless market shares of 4.4 percent, 2.1 percent and 1.9 percent, respectively (Figure 4.1-6 and Appendix C, Table C-2).

**Figure 4.1-6**



All of the incumbent telecommunications service providers continued to increase their wireless subscriber base in 2003. By the end of the year, TELUS Mobility had 3.4 million subscribers, an increase of 14 percent when compared to year-end 2002. Bell and its partners, which include the wireless arms of Bell Canada, Aliant, SaskTel and MTS, had 5 million subscribers, a 14 percent increase over this period. Likewise, Rogers increased its subscriber base by 13 percent to 3.8 million subscribers, falling for the first time below Bell Mobility. In contrast to the previous year, Microcell's subscriber base increased by 6.9 percent to 1.2 million. Most of its new subscribers were acquired during the second half of the year as it recovered from negative customer growth experienced during its restructuring period, completed in May 2003. (Figure 4.1-7 and Appendix C, Table C-2)

Figure 4.1-7

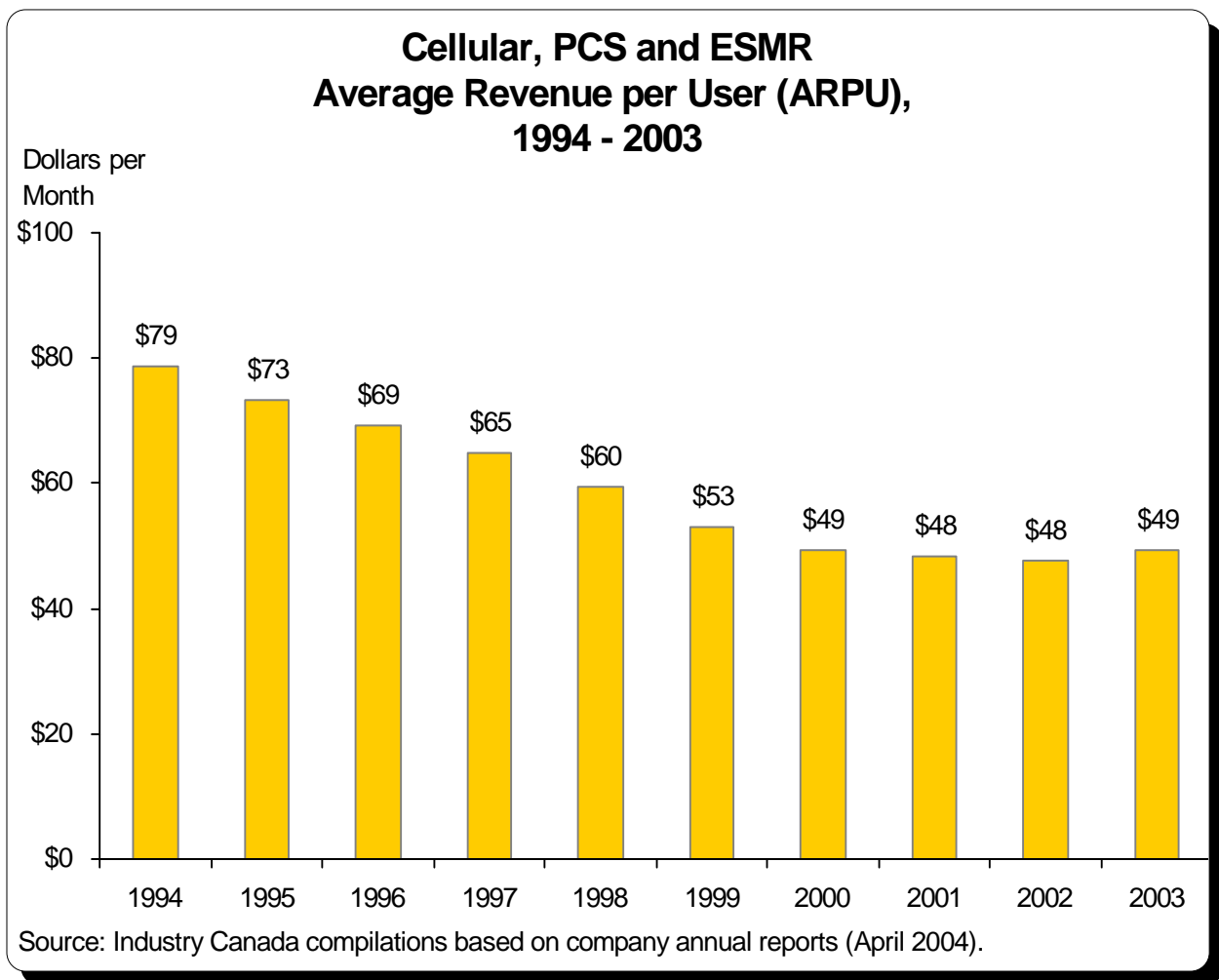


Growth in subscribers over the past five years has been robust for all of the national wireless service providers. Since 1999, the average annual growth rate for TELUS Mobility was 42 percent, aided by its acquisition of Clearnet in the fourth quarter of 2000. Bell and its partners and Rogers Wireless had respective average annual growth rates of 21.5 percent and 15 percent. Despite the previous year's decline in its subscriber base, Microcell had a significant annual growth rate over this period, at 23 percent.

### 4.1.6 Average Revenue per User

In 2003, the wireless service providers were able to increase their monthly Average Revenue per User (ARPU)<sup>11</sup> for the first time in nearly a decade. At \$49 per month, the industry ARPU was \$1 more than in 2002, but still considerably lower than the \$79 per month earned in 1994 (Figure 4.1-8). The stabilization and recent upswing of ARPU has occurred as the wireless service providers in Canada have been de-emphasizing growth in terms of wireless net additions and focussing on revenue growth. This has led to a move away from pre-paid customers and an increased focus on attaining and retaining the higher margin, post-paid customers.

**Figure 4.1-8**



<sup>11</sup> The ARPU indicator is stated in dollars per month. Thus, an ARPU of \$49.00 implies that an average subscriber contributed \$49.00 per month to the wireless carriers. It is a rough approximation of the monthly wireless bill.