

**AN ANALYSIS OF THE MOBILE WIRELESS SERVICES
INDUSTRY IN CANADA**

by

**Alexandra Chu
Bachelor of Arts, University of British Columbia 2007**

**PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF**

MASTER OF BUSINESS ADMINISTRATION

**In the
Faculty
of
Business Administration**

**© Alexandra Chu 2009
SIMON FRASER UNIVERSITY
Summer 2009**

All rights reserved. However, in accordance with the *Copyright Act of Canada*, this work may be reproduced, without authorization, under the conditions for *Fair Dealing*. Therefore, limited reproduction of this work for the purposes of private study, research, criticism, review and news reporting is likely to be in accordance with the law, particularly if cited appropriately.

Approval

Name: **Alexandra Chu**

Degree: **Master of Business Administration**

Title of Project: **An Analysis of the Mobile Wireless Services Industry in Canada**

Supervisory Committee:

Dr. Andrew von Nordenflycht
Senior Supervisor
Assistant Professor
Faculty of Business Administration

Dr. Sudheer Gupta
Second Reader
Assistant Professor
Faculty of Business Administration

Date Approved: _____

Abstract

This essay examines the mobile wireless services industry Canada. The industry is on the precipice of what could be a major change in the dynamics of competition. Industry Canada recently facilitated the market entry of new service providers in order to increase competition for the benefit of consumers. This has the potential to affect the success and future growth prospects of the industry's leading three companies Rogers Communications Inc., Bell Canada Enterprises and Telus Corporation.

The paper provides an overview of the industry's structure, sources of growth, and key challenges. Performance of the leading companies is compared over the past five years. Conclusions are drawn about which company may be best positioned to gain increased market penetration and higher average revenues per user. The paper also highlights sources of advantage that incumbent firms can leverage to maintain their market share in the face of increasing competition and technological change.

Acknowledgements

I wish to thank the faculty of the Segal School of Business for sharing their knowledge and experience over the past year. I also wish acknowledge my fellow classmates who have been a source of support and inspiration.

In particular, I would like to thank Andrew von Nordenflycht, Ph.D., for his guidance during the process of writing this paper. Thank you as well to my second reader, Sudheer Gupta, Ph.D.

Table of Contents

Approval	ii
Abstract	iii
Acknowledgements	iv
1. Introduction	1
2. Industry Overview	3
2.2 Market Value	3
2.2.1 Revenue Streams	5
2.2.2 Revenue collection (pre-paid vs. post-paid).....	6
2.3 Market Volume (Subscribers)	7
2.4 Government Regulation	9
2.5 Customer Segments	10
2.6 Major Competitors	13
2.7 Technology Platforms	14
3. Porter’s Five Forces	18
3.1 Introduction	18
3.2 Rivalry	18
3.3 Threat of Entry	20
3.4 Power of Suppliers	21
3.5 Power of Buyers	23
3.6 Threat of Substitutes	23
3.7 Industry Structure Conclusion	26
4. Competition	28
4.1 Leading companies - overview	28
4.2 Comparative evaluation on key industry metrics	31
4.2.1 Blended Average Revenue Per User.....	31
4.2.2 Subscriber Growth.....	33
4.2.3 Cost of Acquisition	34
4.2.4 Churn Rates.....	36
4.2.5 Operating Profit Margin as a Percent of Total Revenue	38
4.3 Marketing Strategies	39
4.4 Technology Platforms	42
4.5 Preparation for new competition	45
4.6 Conclusions	46
5. Future Outlook	50
5.1 Key challenges	50
5.1.1 Increasing the mobile penetration rate	50
5.1.2 Managing network capacity.....	51
5.1.3 Deploying and Monetizing Value-Added Services	52
5.1.4 Mobile Commerce	53
5.2 Recommendations	54
5.2.1 Leveraging Strengths.....	54
5.2.3 Flexibility in business models.....	56
6. Conclusion	57

Appendices	59
Appendix A: Key Operating Metrics: 2004-2008 Data.....	59
Appendix B: Comparison of \$25 rate plans offered by the big three.....	62
Bibliography.....	63

Table of Figures

Figure 1 Industry Revenue.....	4
Figure 2 Post-Paid vs. Pre-Paid Services	6
Figure 3 Subscriber Growth.....	7
Figure 4 Cell phone penetration by age group	11
Figure 5 Market Share.....	14
Figure 6 Business division and core products and services for leading companies	29
Figure 7 Key financial data for BCE, Telus and Rogers, 2008.....	30
Figure 8 Company Snapshots: Wireless Divisions.....	31
Figure 9 Blended ARPU Comparison	33
Figure 10 Net Subscriber Additions Comparison	33
Figure 11 Cost per gross subscriber acquisition	36
Figure 12 Subscriber Churn Rates	38
Figure 13 Operating Profit Margin as a Percent of Total Revenue.....	39

1. Introduction

Wireless phones are among the fastest growing consumer products in history (Canadian Wireless Telecommunications Association, 2009). The worldwide mobile communications industry acquired as many users in 20 years as the fixed line telecommunications industry reached in 120 years (Gruber, 2005). In Canada, wireless coverage is now available to 98% of Canadians and two thirds of households have access to a wireless phone (Canadian Wireless Telecommunications Association, 2009).

This essay examines the Canadian mobile wireless services industry. Mobile wireless services are provided by three main carriers: Bell Canada Enterprises (BCE), Telus Corporation and Rogers Communications Inc. These companies sell handsets (cellular phones and smartphones) and voice and data services to over 21 million Canadians.

Canada's industry is considered among the most profitable in the world. It is characterized by strong growth in subscriber numbers, consistent increases in revenue and competitive marketing and branding. A key development for the industry occurred in 2007 when Industry Canada concluded that it was in the best interest of consumers to encourage new competition in the marketplace (Industry Canada, 2007). As a result, the government facilitated the process of entry for new companies. The government reserved a certain portion of wireless spectrum (an essential resource for offering wireless services) for new carriers during the 2008 spectrum auctions and enacted several regulations to ease their market entry. With a number of new operators expected to enter the market in late 2009 or 2010, the incumbent players' healthy margins and strong

growth prospects may be challenged. However, the big three incumbents, whose combined market share is 95%, have already taken measures to prepare themselves for increased competition.

This industry analysis will provide information on the current status of the major players in the industry, examine how they have sought to differentiate themselves, and determine the sources of advantage that they can draw upon to sustain their market share in an increasingly competitive environment. This paper will also explore issues affecting growth prospects and assess which companies may be in the best position to gain increased market penetration and higher revenues average per user.

2. Industry Overview

2.1 Industry Definition

This paper analyzes the mobile wireless services industry in Canada. Mobile wireless carriers or operators are companies that enable business and consumers to use their cellular phones (referred to as handsets). Operators provide subscribers access to a network to make voice calls, so it is often said that operators sell airtime. Additionally, operators supply data services that support mobile access to the internet, email, digital picture and video transmission, mobile video, music downloading, video calling and two-way short messaging service (SMS). These advanced data services are an increasingly important source of revenue for the industry. Carriers also sell handsets to their subscribers, including smartphones, which are cellular phones that often have PC-like functions and additional features such as an MP3 player or a camera.

Technically, mobile telecommunications is a subset of wireless communications which refers to communication services that allow the users to move around without losing their connection (Kazam Technologies Inc., 2007). However, the terms wireless and mobile are often used interchangeably to describe the telecommunications services provided by mobile wireless carriers; therefore, the terms will be used synonymously in this paper. The terms carrier, operator and service provider are also used synonymously in this paper to describe a company that provides mobile wireless services to customers.

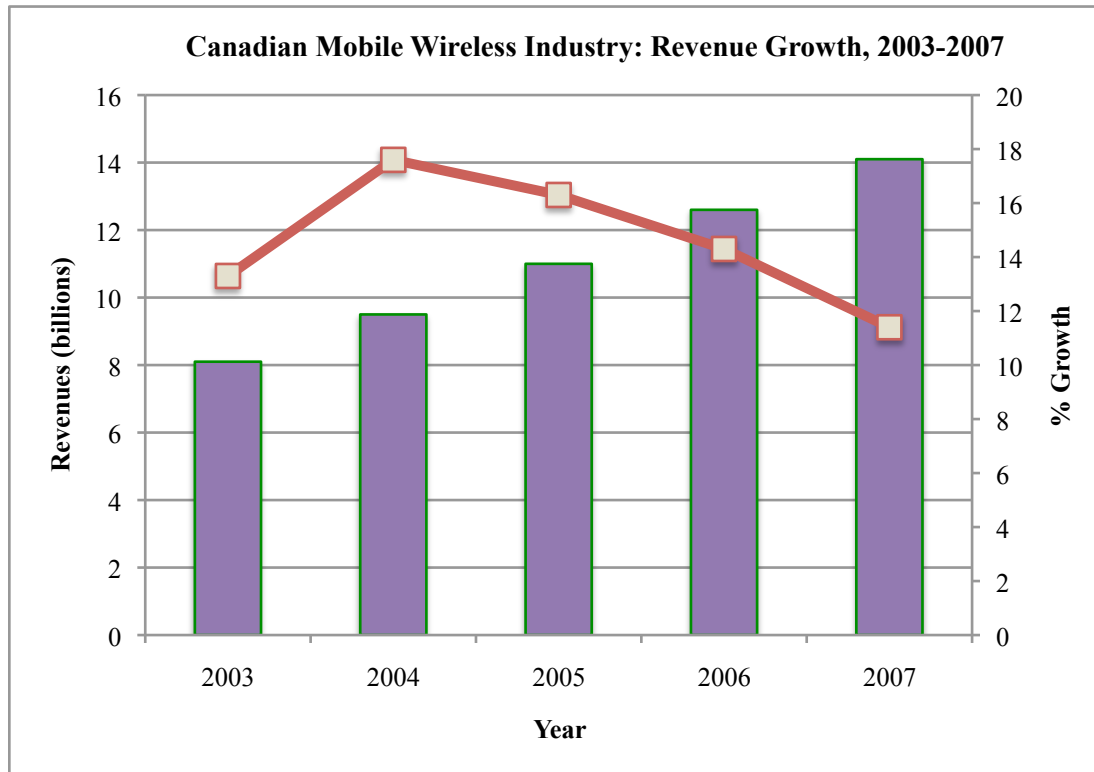
2.2 Market Value

The Canadian wireless services market has performed strongly over the last five years, reaching approximately \$14.1 billion in revenues in 2007 and boasting a

compound annual growth rate (CAGR) of 15.9% from 2003-2007 (Datamonitor, 2008).

Wireless industry revenues for 2008 are estimated to have grown by 11%, which would bring 2008 revenues to approximately \$15.65 billion (Telus, 2008).

Figure 1 Industry Revenue



Source: Datamonitor, 2007 and 2008

Total market value is predicted to climb to \$21.1 billion by 2012, an increase of 50.2% since 2007 (Datamonitor, 2008). This suggests the CAGR will slow 8.5% between 2007-2012 compared to 15.9% over the previous five years (Datamonitor, 2008). This growth rate reflects the increasing maturity of the marketplace, which means that fewer new subscribers can be counted on to increase revenues. However, demand for the provision of data services, driven in part by the availability of smartphones, is expected to serve as a growing source of new revenues.

2.2.1 Revenue Streams

Industry operating revenues can be broken down into two categories: network services and product sales (primarily handsets). Network service revenues are primarily derived from the sale of voice minutes, the most basic service that must be purchased to talk on a phone. A second component of network service revenue comes from the sale of data, which provides the subscriber with the capability to do things such as browse the web from their handset, check email and download music. Also included in network service revenues are services such as voice-mail and caller identification. Products sold by wireless providers include handsets such as cellular phones and smartphones, as well as related accessories. Based on 2008 results from the top three operators, Rogers, Telus and Bell, on average, product sales accounted for 7.3% of total wireless revenues (2008).

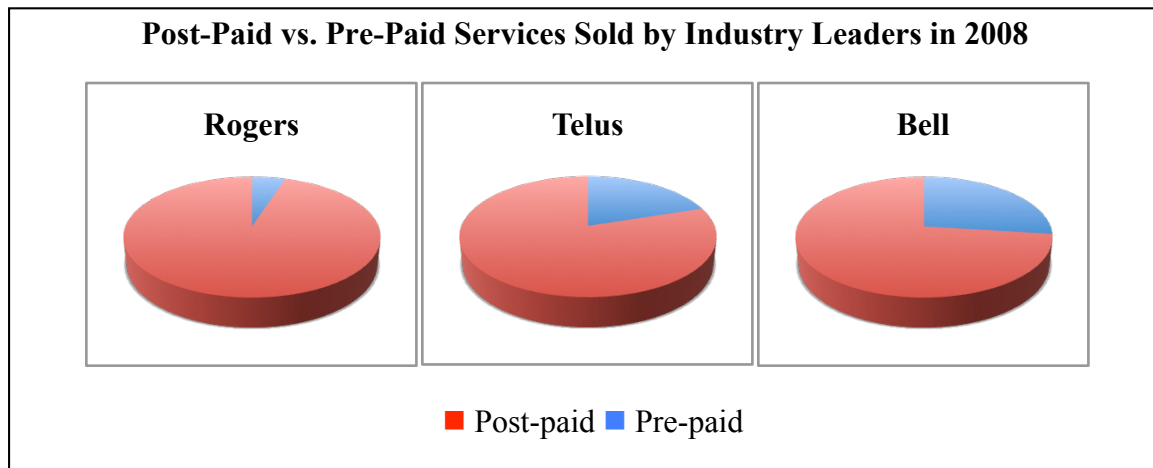
A key driver of wireless growth is the increasing adoption and usage of data services such as mobile computing, digital picture and video transmission, and text messaging. In 2008, revenue from data services increased by 45% across the industry (Bell Canada Enterprises, 2008). According to Forrester Research, the industry is moving away from the early adopter phase for data usage (as cited in Harris, 2009). This is positive news for the industry, as it suggests that data use will accelerate as it is increasingly adopted by average customers, not just tech savvy subscribers or business people who were willing to try data services and perhaps pay a premium when data services were less popular or well-understood. Much of this growth is related to the rapid adoption of smartphone devices. During 2008, the penetration of smartphones in Canada doubled from 12% to 21%, a movement that is consistent with the global trend (TNS, 2009). Subscribers with data plans, in addition to their basic voice services, typically

have much higher average revenues per user (ARPU). A large source of wireless growth will come from the ability of companies to encourage increasing numbers of existing subscribers to add data services to their monthly plans.

2.2.2 Revenue collection (pre-paid vs. post-paid)

Network services are sold to customers by either the pre-paid or post-paid method. Pre-paid means that customers pay for the services they will use in advance. Typically the customer can purchase a certain value of services, such as \$10, \$20, or \$30 that is valid for a specified period of time, often one month. Pre-paid services are a cost-effective option for consumers who make minimal use of cellular phones or want to avoid a long-term contract. However, users must purchase their own handset, typically at rates higher than those offered to customers who are willing to sign a post-paid contract for multiple years.

Figure 2 Post-Paid vs. Pre-Paid Services



Source: Rogers, 2008, Telus, 2008, and BCE, 2008

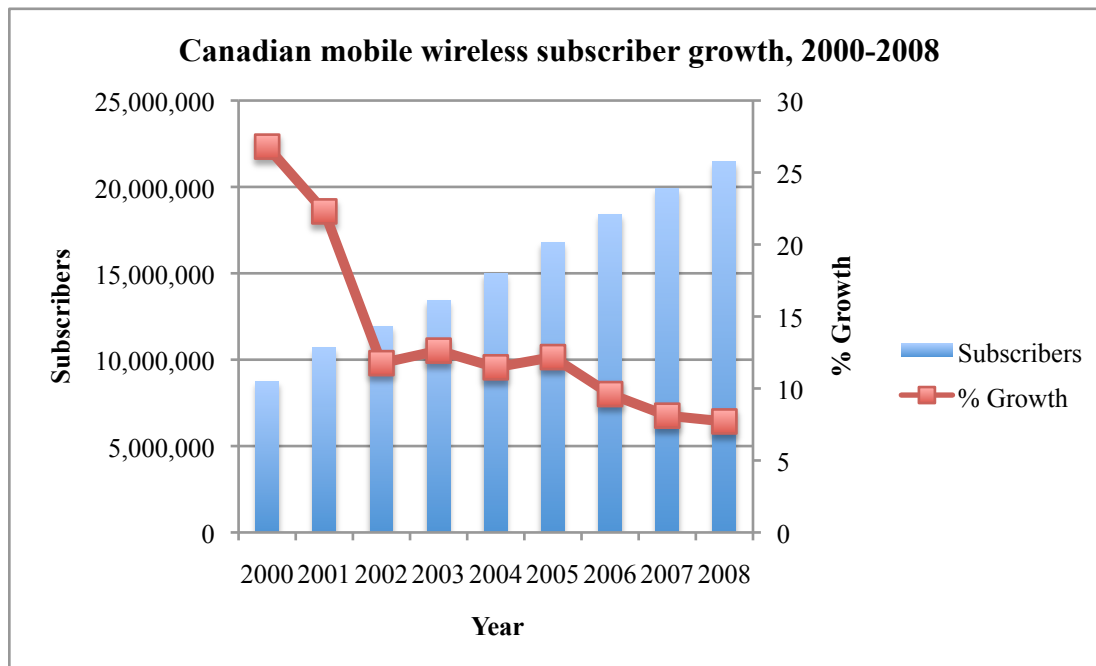
Post-paid services are predominant in this industry, as illustrated by figure 2 above. Post-paid service plans often require customers to sign a contract ranging from one to three years. Customers pay a monthly bill and may be able to bundle their cell

phone plan with other services offered by the company, such as cable or internet. Post-paid contracts are typically worth more value per unit than pre-paid services. Post-paid contracts are the mainstay for customers that use their phones regularly, as the rates on pre-paid services would otherwise be unaffordable.

2.3 Market Volume (Subscribers)

The industry is experiencing healthy growth in annual subscriber rates (see figure 3 below). Since 2000, subscriber numbers have grown at an average annual rate of 13.62%. In 2008, approximately 21.5 million Canadians (out of a total population of approximately 33 million) subscribed to a wireless service (Canadian Wireless Telecommunications Association, 2009 and Statistics Canada, 2009). While the annual growth rate of subscribers has been slowly declining year over year (as shown in figure 3 below), the market still holds medium potential for subscriber growth.

Figure 3 Subscriber Growth



Source: Canadian Wireless Telecommunications Association, 2009

To understand the significance of subscriber growth rates, the penetration rate should also be considered. The penetration rate reflects the percent of Canadians aged 16 to 60 that own a cell phone. Canada's 2009 penetration rate is 70%, up one percentage point from the previous year (Shaw, 2009). This penetration level is below the global average of 86% and well below the rate of other developed countries such as the United Kingdom, which has a 97% penetration rate and the United States at 91% (Shaw, 2009). These statistics suggest that Canadian companies still have an excellent opportunity to grow their subscriber and revenue bases through new customer acquisitions, as opposed to trying to generate greater revenue out of existing customers. However, reaching out to these consumers may be a challenge, as a recent TNS 2009 Global Telecoms Insight study suggests that 22% of Canadians are "rejecters" who do not plan to begin using a cell phone in the next 12 months (Shaw, 2009). While the comparison of penetration rates is useful, the statistics must be interpreted with some caution. Differing circumstances in other countries may be reflected in their higher penetration levels. For example, in many European countries where GSM technology is used, customers are known to have multiple subscriptions with different carriers to avoid high roaming charges. Thus, it is difficult to make an exact prediction of Canada's growth potential based on comparisons. Yet despite these qualifications, international comparisons are still the best type of proxy for estimating what percentage of the remaining 30% of Canadians between 16-60 may become cell phone adopters.

Datamonitor, an independent market analysis company predicts subscriber growth to increase at a CAGR of 7.6% between 2007-2012 (2008). At a less optimistic growth rate of five percent per year, the industry would still be adding over a million subscribers

each year. However, at a five percent growth rate beginning in 2007, the subscriber base can only expand for about another 7 years before reaching saturation. This calculation is based on today's figures, meaning it assumes the population does not increase, users over 60 do not use cell phones, and subscribers do not use separate accounts for business and personal use. At the same time, this conjecture optimistically assumes that companies will be able to reach maximum penetration by adding users from demographic groups that are the least apt to use cellular phones. However, even with some flexibility in these assumptions, to permit for population growth, these figures suggest that the next five years will likely be crucial for companies to secure new subscribers before saturation begins to be talked about in the industry.

2.4 Government Regulation

The wireless industry is regulated by the Canadian Radio-television and Telecommunications Commission and Industry Canada. While the pricing of wireless services is not regulated, the government monitors competition in the industry and controls spectrum, a key resource that must be obtained for a provider to offer mobile wireless products. Spectrum licenses are auctioned to carriers at periodic intervals.

During the 2008 spectrum auction, the government reserved 40% of available spectrum for new entrants. The government essentially removed a barrier to entry by protecting the new entrants from having to compete against incumbents who could potentially employ a strategy of using their financial resources to outbid new players in the auctions in order to keep them out of the industry. The spectrum set-aside also ensured enough spectrum was available to allow for a new national carrier or several regional players to enter the industry. Industry Minister Jim Prentice announced that

these rules were designed to increase competition in an industry where prices are too high for consumers (Ottawa opens up wireless industry to more competition, 2007). The government also mandated roaming agreements, which force existing carriers to share their networks with newcomers for five to ten years, as the entrants build up their own networks. The rationale is that building a network is expensive and takes time, so sharing agreements will assist new players as they are establishing their networks. Additionally, existing carriers are required to rent space on their towers to newcomers at “reasonable” rates or face arbitration (Ottawa, 2007). The entry of new players in the industry has the potential to accelerate growth if the new competitors are able to shake up the industry and offer lower prices to engage new consumers. This in turn would force incumbents to also become more competitive with their pricing. On the other hand, the government’s involvement may have a limited effect, if the market cannot support a fourth national carrier.

2.5 Customer Segments

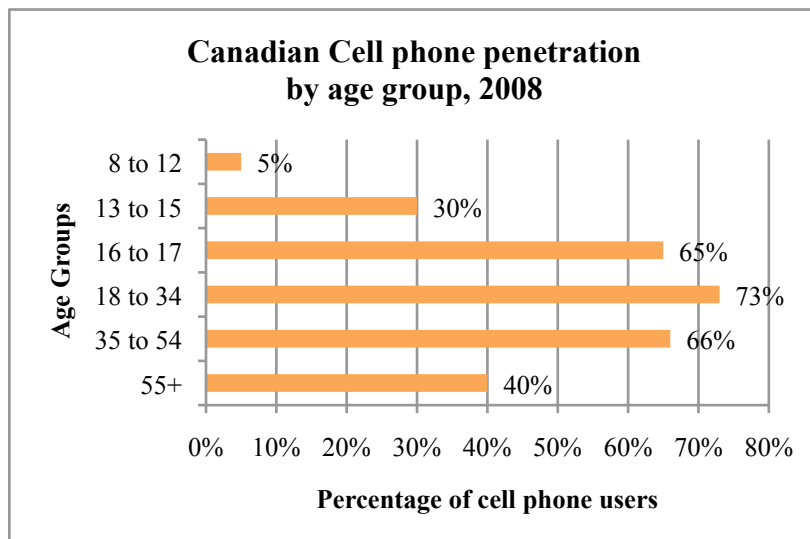
Since the basic products -- voice minutes and data services -- are fairly standard, competitors try to differentiate themselves by carrying different handsets and offering plans that target different lifestyles or patterns of phone usage. Customers are commonly segmented in two ways. One segmentation breaks out youth, families, and business. A separate segmentation distinguishes between discount buyers and premium buyers.

Youth:

The youth market is increasingly seen by the industry as a key source for new growth. Several wireless brands are specifically targeted at the youth market. Research by Harris/Decima suggests that tech savvy youth use a higher proportion of data services

and are considered among the earlier adopters of new wireless features such as listening to and downloading music on a handset (2008). Harris/Decima's 2008 study collected data on mobile penetration rates by age group (see figure 4 below). The 30% penetration rate in the 13-15 year old bracket along with the 65% rate for 16 to 17 year olds suggests that cell phones are not out of the reach of high school students, who likely rely on their parents to make purchases. Furthermore, given that penetration rates in the youth brackets rival and exceed those in the 35-55+ range, it is easy to see why carriers continue to target this segment where they are having success.

Figure 4 Cell phone penetration by age group



Source: Harris/Decima, 2008

Note: This survey excluded cell-only individuals who would increase penetration levels, particularly in the 18-34 age group.

Families:

Family plans are an important aspect of most operators' marketing. Families may include parents or couples. Advertisers reach families with promotions that have provisions for shared minutes and data services. For operators, family plans are

essentially group contracts that increase the barrier for one of the individuals to switch to an alternate provider.

Business:

Approximately 27% of Canadians use their cellular phones primarily for business purposes, while 8% of Canadians split their use evenly between business and personal (Harris/Decima, 2008). Business customers are often white-collar professionals who make heavy use of data services, particularly to access wireless email.

However, cell phones that act like two-way radios and facilitate group calls have been developed for industries such as construction and oil and gas. These cell phones are extremely durable as they are military tested to resist the elements such as rain and dust. Furthermore, using these handsets like walkie-talkies is said to increase efficiency on job sites as calls can be made more quickly, recipients avoid the temptation to let calls ring or go to voice mail and call length is typically shorter. Furthermore, these phones are capable of working within a 3km radius even when worksites are remote and phones are outside of network coverage areas.

Discount Segment:

Many service plans target customers who are primarily interested in simple phones for talk and text services only (Warren, 2008). Telus's research indicates that while 20-25% of customers are interested in the newest data services like music downloads, about 75% are satisfied with basic talk and text plans (Lloyd, 2008). Often these types of plans are sold by one of the independently recognized brands of the three major carriers, for example, Bell's Solo brand. Discount segment subscribers tend to be low usage users, first time subscribers and younger subscribers.

Premium segment:

The premium segment consists of customers who gravitate toward higher-end devices such as smartphones (typically ranging from \$200-\$600). These subscribers are usually postpaid customers with higher than average cost monthly plans incorporate a variety of services beyond voice and text. According to Telus's research, this segment accounts for about 20-25% of wireless consumers (Lloyd, 2008).

2.6 Major Competitors

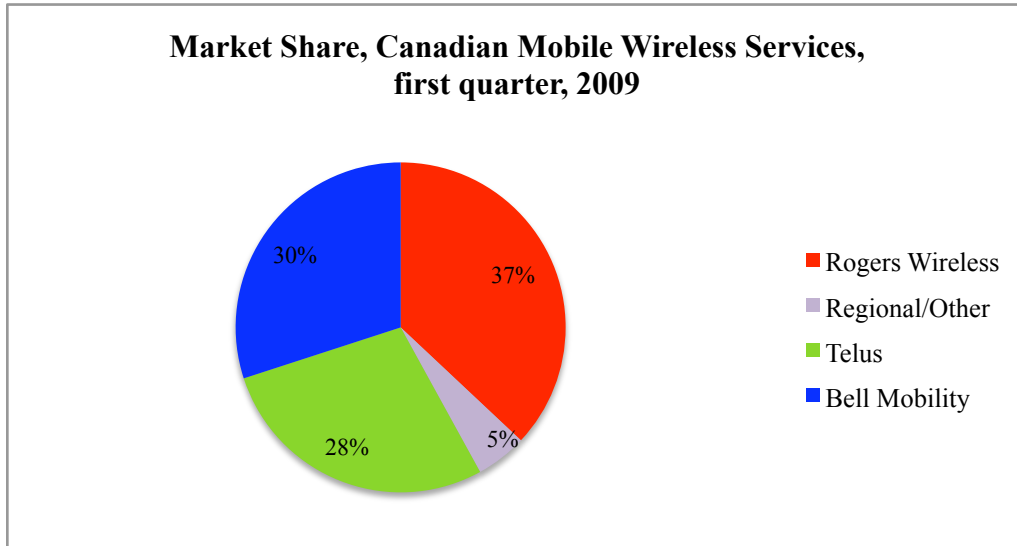
The major competitors in the wireless industry are facilities based national providers. These companies own and operate the infrastructure and networking equipment necessary to provide mobile wireless connections to customers. Included in this group are Telus Corporation, the wireline telecommunications operator in Western Canada, Rogers Wireless Incorporated, and BCE, which operates under the Bell brand and is Canada's largest telecommunications company.

Also in the market are facilities-based provincial telecommunications providers Sasktel and MTS Mobility. Sasktel competes in Saskatchewan and MTS Mobility in Manitoba.

Mobile Virtual Network Operators (MVNO) do not own their own wireless infrastructure or bandwidth and are therefore required to lease network service from facilities based operators. Among Canada's MVNOs are Virgin Mobile Canada, Primus Telecommunications Canada and President's Choice. In May 2009, BCE acquired the 50% stake in Virgin Mobile, which it did not already own.

The three main incumbents, Rogers, Telus and Bell, hold 95% of the Canadian market as of quarter 1, 2009 (Rogers Communications Inc., 2009). Market share is illustrated in figure 5 below:

Figure 5 Market Share



Source: <http://tiny.cc/JCdjJ>

2.7 Technology Platforms

Each wireless operator in Canada uses one of the two main globally competitive network technologies that transmit voice and data: Global System for Mobile Communications (GSM) or Code Division Multiple Access (CDMA). GSM is the dominant technology in Europe and is more popular globally; however, CDMA networks are very popular in North America and parts of Asia. GSM networks are estimated to hold 73% global market share versus 14% for CDMA (Which technology is better: GSM or CDMA?, 2008). Operators generally have to commit to only one technology because each technology standard entails specialized investments in network infrastructure, supplier relationships, and engineering expertise. Furthermore, handsets are specialized

depending on the technology and except in rare cases they cannot roam on incompatible networks.

Historically North American network platform standards were not mandated, which meant that companies had to make a strategic investment in their chosen technology, without knowing for certain how each technology's path would evolve, which would be superior and if a global standard would emerge. There have been camps on both sides of this standards battle, advocating the technological superiority of each standard along criteria such as download speeds and efficiency of spectrum use. One major advantage for GSM operators and their subscribers has been the roaming capabilities that are available for GSM users, due to the widespread use of this technology globally. Providers have established roaming contracts with one another. This means that when a subscriber travels outside their operators' coverage area they can tap into another operator's GSM network. Furthermore, when traveling internationally, GSM users can replace their phone's Subscriber Identity Module (SIM) card (essentially a removable chip that links the phone to the network) with one purchased from a local provider and access the local mobile phone service, thus avoiding international roaming charges. CDMA phones do not work on the SIM card system.

Each technology platform has an evolution path. These are essentially technology upgrades that have or will be made by providers to allow their networks to deliver faster speeds and better quality. These high speeds are increasingly demanded as more and more subscribers use data devices to surf the web and download ever-larger files such as music. The next technologies in the evolution path are still in development. A key strategic decision for companies involves determining when to invest in these upgrades

and what technologies to choose. Timing can often be an important factor in these decisions which involve taking into consideration what the competition is offering or what they will be able to offer in the near future, what is needed to support subscribers' anticipated usage patterns and whether a return on investment can be made in a reasonable period of time (based on estimates of future use patterns and the cost of upgrades).

Currently, operators in Canada are using 3G wireless standards, or third generation technology (which operators use which standard is discussed later, in section 4.4). First generation technology began in the early 1980s and is analog service (now decommissioned in Canada). Second generation technology is digital and emerged in the 1990s, primarily under the two standards discussed earlier. 3G refers to higher bandwidth packet switched networks. 3G delivers voice and data (including multimedia applications) at better speeds with higher spectral efficiency. 3G technology for CDMA networks is known as EVDO (Evolution Data Optimized). The GSM equivalent is called EDGE (Enhanced Data Rates for GSM Evolution). The GSM standard's 4G technology (not yet commercially available) is known as Long Term Evolution (LTE). LTE is emerging as the global standard, as the development of CDMA's 4G technology equivalent has recently been cancelled. Thus, by the time that 4G technologies are commercially available, it is anticipated that there will be convergence to one standard. Given their experience with the GSM family of technologies, current GSM operators, may have an advantage over CDMA carriers planning to completely overhaul their 3G networks with LTE technology. However, this advantage may be minimized by those

players that incrementally upgrade their networks, such as Bell and Telus (see section 4.4 for more details).

3. Porter's Five Forces

3.1 Introduction

The Canadian mobile wireless services industry is perhaps the most profitable in the world. Merrill Lynch ranks the Canadian industry number one in profitability among developed nations (Nowak, Rogers, Bell, Telus: The most profitable cell phones around, 2008). The top three carriers had an average profit margin (calculated as revenue divided by EBITDA) of 45.9%, well above the developed world's average of 33.1%. In comparison, the mean margin in the US was 32.1%, while the second closest country was Italy at 41% (Nowak, Rogers, Bell, Telus: The most profitable cell phones around, 2008). In terms of ARPU, a key measure of industry performance, Canadian companies ranked second highest in the world out of 53 countries. Rogers, Telus and Bell's mean ARPU was \$60.83 US, compared to the developed nations' average of \$44.24 US (Nowak, Rogers, Bell, Telus: The most profitable cell phones around, 2008). This section will apply Porter's Five Forces model to explore the reasons behind Canada's lucrative industry.

3.2 Rivalry

Rivalry in the wireless sector is moderate. The three national carriers have captured 95% of the market each taking between 28 -38%. This high concentration makes the industry less competitive and is reflected by the industry's high profit margins. Furthermore, given the strong level of market growth, at a CAGR of 15.9% between 2003-2007, firms are growing simply by expanding the market, rather than fighting to take each other's market share (Datamonitor, 2008).

One overarching factor that increases rivalry is the undifferentiated nature of airtime and basic services like caller identification and voice mail. Data services can be partially differentiated by download speeds, although speed can depend on factors such as the handset, topography and environmental conditions and network congestion (Rogers Communications Inc, Rogers Network Advantages, 2009). A survey of the three main carriers' websites shows they charge closely comparable rates for data; however, Rogers' ability to advertise higher speeds may help the company attract subscribers to the network. Thus, as a result of the lack of differentiation with many of the carriers services, especially voice services, the industry's rivals spend large amounts of money to differentiate themselves through advertising and branding.

Given that once a company acquires a post-paid customer, they will likely lock them into a one to three year contract, competition for new acquisitions is strong as competitors are forced to offer closely matched promotions and make large marketing expenditures.

While the market still holds growth potential, rivalry is likely to increase for several reasons. First, as the penetration rate increases, the number of first-time users gets ever smaller (and ever more resistant to using mobile phones). Second, Industry Canada, hoping to increase industry competition, facilitated the entry of several new entrants during the 2008 spectrum auctions, as discussed previously in section 2.4. These factors have led to increased spending on customer retention (BCE, 2008, Telus, 2007 and 2008, Rogers Communications Inc, 2008). This reflects recognition of the need to establish long-term customer relationships at the present time in order to ensure that

subscribers remain loyal in the future when new entrants arrive or when penetration rates reach higher levels.

3.3 Threat of Entry

The threat of entry in the industry is moderate. The high level of capital expenditure required to deploy network infrastructure combined with the industry's restrictions on foreign ownership create a strong financial barrier to entry. Furthermore, the government's regulation of spectrum restricts the opportunity for new entrants to compete in the market, as they must first acquire spectrum through a competitive auction process that may only occur once every few years. However, as previously mentioned, in 2008 the government made provisions that lowered barriers to entry in the industry. As a result, the overall threat of entry in the industry increased from low to moderate. The next paragraphs will elaborate on each of these barriers in more detail.

Given the high level of capital expenditure required to build a facility based wireless network, one major barrier to entry in this industry is finance. In order to compete, an extensive network must be built, but risks include a long payback period and technological obsolescence due to the fact that incumbents are continually investing in the latest technologies. Mobile Virtual Network Operators may somewhat avert this obstacle, but they are then dependent on incumbents that control existing facilities and spectrum. Furthermore, incumbents benefit from a sunk cost advantage given that their networks are basically already built and the investment is being recouped through the revenues from their established subscriber base. This means that incumbent's marginal cost for adding a new customer may be lower than for a new entrant

Compounding the financial barrier to entry are the industry's foreign ownership restrictions. The Telecommunications Act requires at least 80% of voting shares of telecommunications carriers to be held by Canadians (Meckbach, 2009). However, these restrictions are currently under government review.

Third, in order to enter the industry, companies must gain access to spectrum through a process controlled by the government. Spectrum licenses cost hundreds of millions of dollars, which adds to the financial burden firms must assume before receiving any revenues from subscribers. During the last spectrum auctions, the government introduced a number of regulatory actions that essentially lowered the barriers to entry for new companies (refer to section 2.4 for details).

Overall the threat of entry is moderate. While there are significant barriers to entry, the recent actions of the government were deliberately designed to lower these barriers and encourage the entry of new players.

3.4 Power of Suppliers

The power of suppliers is moderate to strong. The industry's major suppliers include network equipment providers, handset manufacturers, the government, and professional employees.

There are relatively few network equipment manufacturers in the industry, which is dominated by large players such as Ericsson, Samsung and Nokia Siemens. Due to the low level of competitive pressure in the suppliers' industry, these companies have the ability to negotiate strongly with Canadian wireless carriers.

Handset manufactures also hold a position of power over Canadian operators. In general, operators face a cost premium when trying to purchase handsets. This is due in

part to their relatively small size compared to operators in the United States (Kazam Technologies Inc., 2007). As a result, Canadian companies either acquire handsets that are mass-produced for larger operators or pay more to purchase phones. This cost is reflected by Canada's high cost of acquisition (COA), which includes handset subsidies that are offered to lure new customers. Canada's COA is the second highest in the world (Kazam Technologies Inc., 2007). Ultimately, since handset manufacturers produce for carriers around the world, operators in the Canadian market are seen as relatively small clients.

Since carriers rely on manufacturers to provide the latest handsets that will attract customers, they often find themselves in a weak negotiating position with manufacturers. In particular, the most powerful handset makers such as Apple are able to make costly demands of the carriers that sell their devices. In order to sell the coveted iPhone, carriers are obligated to offer subsidies to consumers. This typically means that carriers must incur costs of about \$400 on each phone (Sorensen, 2009). Additionally, handset manufacturers can put carriers in a difficult position when they introduce device upgrades. To continue with the Apple example, now that the iPhone 3Gs has been introduced, carriers must decide if they will allow subscribers (typically on a three year contract) to upgrade without paying the full price of the new phone. The alternative is to insist the subscriber stay with the original device until their contract expires, likely upsetting the subscriber (Sorensen, 2009). Carriers often use such popular devices as key aspects of their marketing campaigns. Thus, despite the fact that most manufacturers rely primarily on carriers to sell their handsets, they are still able to yield a considerable amount of power.

As previously described, the government also has considerable power due to its ability to allocate spectrum, a necessary and vital resource. This affects incumbents as industry dynamics and competition are partially controlled by the government and market forces are not left to operate on their own.

Lastly, highly educated managers and engineers are key resources, due to their knowledge of the industry and the latest technological innovations. Companies must compete to retain these individuals and pay them competitive salaries.

3.5 Power of Buyers

In Canada's mobile wireless industry, the overall the power of buyers is low. The industry has established a barrier to switching by signing the majority of customers to long-term contracts with incentives for continued renewal. Additionally, with only three main competitors in the marketplace, price matching amongst competitors is relatively consistent, reducing the incentive for customers to switch. Furthermore, individual customers providing \$50 to \$60 dollars in revenue a month do not have high negotiating power in a marketplace where subscriber growth potential remains healthy.

Customers may have incentive to switch if they do not have a contract and are unhappy with customer service or are lured by a special promotion. One barrier to switching was weakened in 2007 when wireless number portability was introduced, allowing customers to maintain their number when changing providers. Nonetheless, buyer power is relatively low as the market is expanding each year and the three leading players are able to maintain prices that provide them with healthy margins.

3.6 Threat of Substitutes

Substitutes for wireless phones include WiFi, voice over internet protocol (VoIP), World Interoperability for Microwave Access (WiMAX) and traditional wireline phones. The strength of these substitutes will depend on the progress of technological innovation, which means the current degree of threat is moderate. Furthermore, wireless operators may have the opportunity to utilize some of these new technologies themselves in the future, thereby making them more of an opportunity than a threat.

WiFi is the technology used to support wireless local area network (WLAN) deployments. Anyone with an Internet connection can set up WiFi networks, since they operate on unlicensed spectrum. WiFi provides Internet connectivity for compatible devices, including laptops and smartphones, that are within a limited area surrounding the technology. For example, WiFi hotspots are often found in coffee houses or airport lounges. When several WiFi networks are linked together to form a single network, this is referred to as a Mesh network. Some municipalities and towns are planning to create Metropolitan Area Networks (MAN), which are mesh networks spanning an entire city or downtown core. In a few cases, such networks have already been deployed such as in Fredericton, New Brunswick where the city has created the Fred-e-zone. The global market for Mesh Networks is expected to grow at a CAGR of 96% to \$970 million in 2009 (Kazam Technologies Inc., 2007).

With the widespread build out of mesh networks, wireless operators may end up competing with municipalities or others who could offer wireless services in metropolitan areas. For example, a company called Cogeco has just introduced a plan that gives iPhone users unlimited access to WiFi (download speeds of 8mbps) in Toronto's downtown core (6 km square) for only \$5 per month (Kavur, 2009). There is the potential

for smartphone users to obtain data services from WiFi operators and make calls over the internet using a VoIP service. However, with respect to VoIP, specialized Quality of Service measures still need to be in place and certain privacy issues need to be resolved before voice over wireless local area network can truly become an effective alternative means for voice communication (Kazam Technologies Inc., 2007). Quality of Service issues are related to guaranteeing that connections will not be delayed or dropped due to interference from other lower priority traffic on a network (VOIP-info.org, 2008). There are already cell phones on the market that are capable of running off an operator's network (your standard mobile service) and switching to WiFi hotspots or mesh networks when available (this saves the user money because they can often access the internet for free or at lower rates than when using their provider's mobile network)—although these phones are still costly.

If VoIP enabled phones were to become more popular, they could pose a threat to operators voice revenues, especially if customers started routing calls over home and office WiFi connections that are already up and running for other purposes. Some international providers have responded to this threat by banning VoIP services from their networks. VoIP presents a strong challenge for incumbents who are not used to competing with VoIP companies such as Skype, that offer free Skype to Skype calls.

At present, WiMAX is an early stage fixed wireless technology, enabling broadband connectivity to residential and business users. However, the evolution to the next standard (802.16e) would allow for communication with mobile devices (Kazam Technologies, 2007). WiMAX technology still needs to achieve reductions in certain costs to become more viable (Kazam Technologies, 2007). However, there is the

potential threat for new service providers to emerge offering a mobile version of WiMAX. In 2005, Rogers and Bell formed a joint venture to construct a pan-Canadian broadband network based on evolving WiMAX technology. Thus, they may be in an opportunistic position if WiMAX technology develops favourably in terms of the delivery of mobile services.

Wireline phones are not considered a large threat since they are not mobile and users are increasingly choosing to abandon landlines altogether. According to a 2008 Harris/Decima Study, 19% of households are likely to replace one or all of their traditional telephone lines with one or more wireless services within the next year (2008).

Overall, wireless providers may find ways to turn the threat of these substitutes into a competitive advantage by integrating them into their business model. However, this often requires high levels of capital expenditure. At the same time, one of the key threats associated with these technologies is that they may provide a way for new companies that are not currently competing with cell phone operators to enter the market as experts offering these new services.

3.7 Industry Structure Conclusion

Analysis using Porter's Five Forces framework highlights that the relatively modest level of rivalry, along with the weak power of buyers are key factors contributing to the profitability of the Canadian mobile wireless services industry. This high profitability is maintained in part because the barriers to entry in the industry are ordinarily quite high, making it difficult to increase competition amongst facility based providers.

There are two sources of potential threats to industry profitability for current service providers. First, the government, in its regulatory role, has recently facilitated the entry of new players into the industry. These new firms are expected increase rivalry in the market by forcing existing carriers to sacrifice some of their profitability in order to compete on price with new entrants or offer incentives to retain customers. Incumbent firms would not ordinarily wish to assist competitors in entering the market by providing roaming services and sharing equipment, unless a favourable agreement could be reached. However, if incumbents cannot reach tower sharing and roaming agreements with new entrants, they face government arbitration. This is a worry for incumbents, as there is uncertainty with respect to arbitration rulings and their potential to result in unfavourable decisions for incumbent carriers.

The second threat to profitability comes from new technologies that could substitute for some, or all mobile service functions. The substitutes mentioned in this analysis are only those currently well-known, but there is a potential for a disruptive technology to threaten current investments in network infrastructure. In the future providers may try to incorporate emerging technologies that could be a threat or develop partnerships with alternate service providers.

Despite the industry's current level of profitability, no carrier has a geographic monopoly that allows it to easily maintain and grow its subscriber base. The carriers must still compete in order to ensure their bottom lines and protect their market share. The following section will examine the nature of competition among the three main incumbents and examine their potential to remain profitable as the industry changes over the next few years.

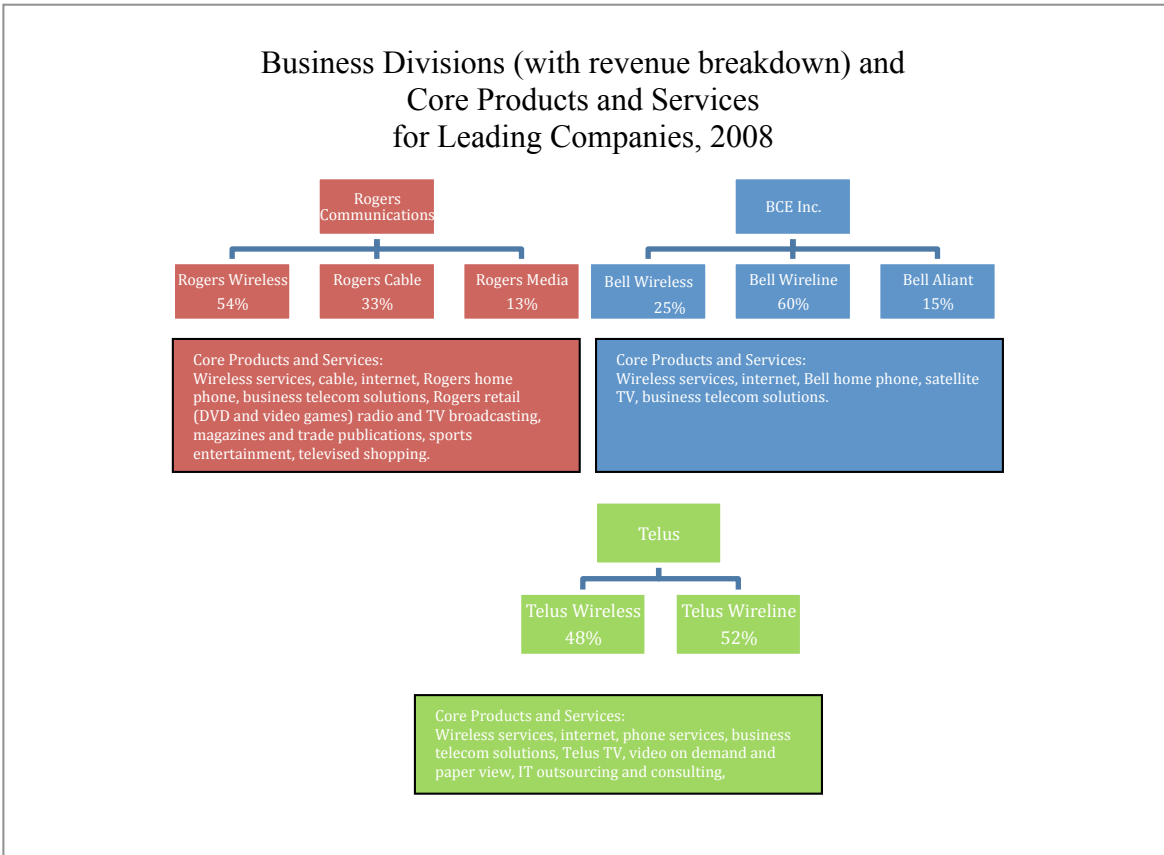
4. Competition

This section of the paper evaluates Bell, Telus and Rogers to determine their competitive positions in the industry. The comparison is limited to these companies because they drive the industry with a combined market share of 95%. The intent of the comparison is to yield conclusions about which company is best positioned for future growth. In order to identify competitors' strengths and weaknesses, the analysis will employ a series of commonly used industry performance metrics. Analysts often use these metrics when assessing investment opportunities in telecoms (McClure, 2009). These measures include average revenue per user (ARPU), net subscriber additions, cost of acquisition per gross subscriber addition (COA), churn per month, and operating profit as a percent of total revenue (see Appendix A for complete data). To round out the analysis marketing strategies and network platform choices will also be considered.

4.1 Leading companies - overview

This section will provide a brief overview of the industry's three leading companies, covering major developments in the last few years. BCE is Canada's largest telecommunications company, followed by Telus, which had its roots as Western Canada's wireline provider. Rogers the leader in terms of wireless market share is involved in both the communications and media businesses. The following chart provides an overview of the business units within each corporation, highlighting the fact that the companies compete in more than one category. Of all three providers, BCE derives the lowest percentage of revenues from wireless, while Rogers and Telus draw around half their revenues from their wireless business.

Figure 6 Business division and core products and services for leading companies

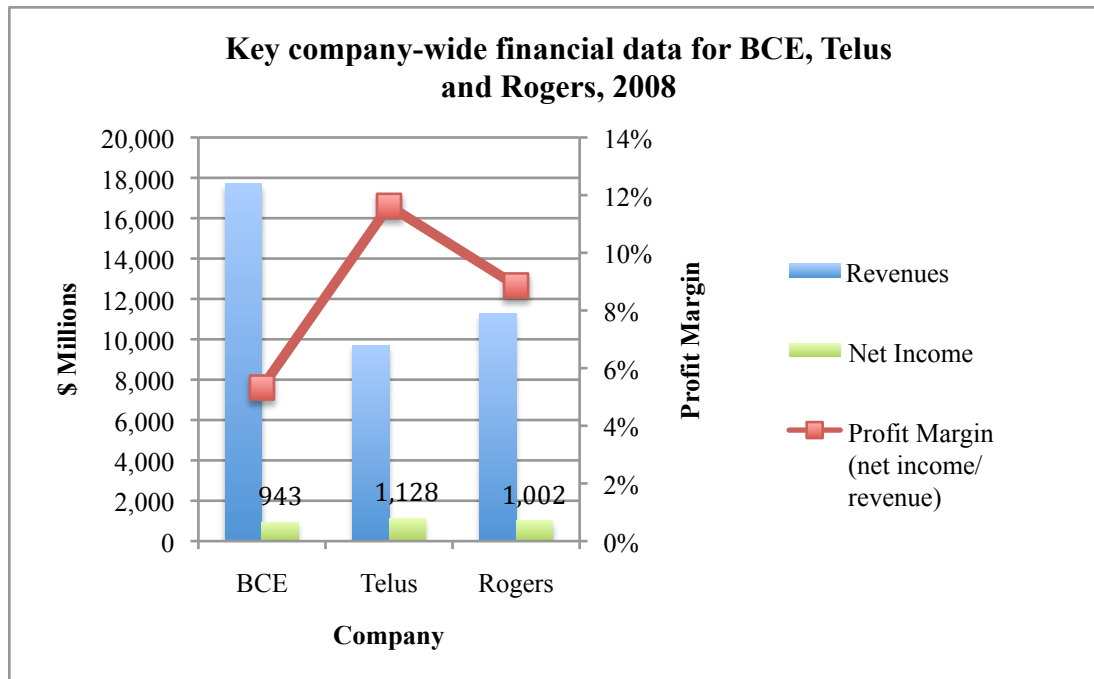


Source: Rogers, 2008, BCE, 2008, Telus, 2008

In order to provide a financial snapshot of these companies, revenues, net income and profit margin for 2008 have been graphed below (see figure 7). Bell is clearly the revenue leader in the group. The company’s overall performance in the telecom industry may be seen as an indication of the company’s strength (Datamonitor, BCE Inc., 2008). In 2007, the Canadian telecom industry generated estimated revenues of \$40 billion, with Bell Canada and affiliated companies representing about 45% of this total (Datamonitor, BCE Inc., 2008). However, the analysis that follows (section 4.2) reveals that Bell’s wireless segment lags behind the competition in important categories such as profit margin and subscriber growth. Furthermore, BCE’s overall profit margin for 2008, dropped below the 12.8% average achieved over the previous five years (Datamonitor,

2008).

Figure 7 Key financial data for BCE, Telus and Rogers, 2008



Source: Rogers, 2008, BCE, 2008, Telus, 2008

In 2007, BCE entered into a transaction that was to result in the privatization of the company in late 2008. However, the purchaser, a private equity consortium led by the Ontario Teachers' Pension Plan, terminated this transaction in late 2008. The takeover deal collapsed after a year and a half of negotiations when an analysis completed by the accounting firm KPMG found that BCE could not meet solvency tests defined by the agreement. BCE is now pursuing litigation in order to receive payment of a \$1.2 billion break-up fee, which the company believes it is entitled to (BCE, 2008). BCE has emerged from this period with a new strategy to deliver a dramatically better customer experience, while attaining a competitive and cost-efficient operating structure (BCE, 2008). Under the leadership of its new CEO (appointed in summer 2008), Bell is undergoing restructuring and reorganization to achieve its new strategy. In August 2008, Bell launched its new corporate brand with a new logo, tagline and advertising campaign.

The new brand is designed to be straight-forward and benefit focused (BCE, 2008).

The following table provides a snapshot of each company’s wireless division, which will be helpful for understanding the subsequent sections of the paper (see figure 8). In terms of their wireless divisions, each company has a strong subscriber base of over 6 million. All of the companies retail their products under at least two different brands, which allows each company to focus on more than one market segment. The brands are kept separate in the eyes of consumers, so that often shoppers are unaware that the parent company owns the other brands.

Figure 8 Company Snapshots: Wireless Divisions

Company Snapshots: Wireless Subscribers and Brands		
Company	Subscribers (year end 2008)	Brands
BCE	• 6.5 million	• Bell • Solo • VirginMobile
Telus	• 6.1 million	• Telus • Koodo • Mike
Rogers	• 8 million	• Rogers • Fido

Source: BCE, 2008, Telus, 2008, Rogers, 2008

4.2 Comparative evaluation on key industry metrics

4.2.1 Blended Average Revenue Per User

A key performance and growth indicator is average revenue per user (ARPU). This is calculated by dividing network revenue by the average number of subscriber units on the network during a given period of time (in this case, one year) and is expressed as a rate per month. The graph below illustrates blended ARPU (figure 9), which means that it includes data from both pre-paid and post-paid subscribers’ accounts.

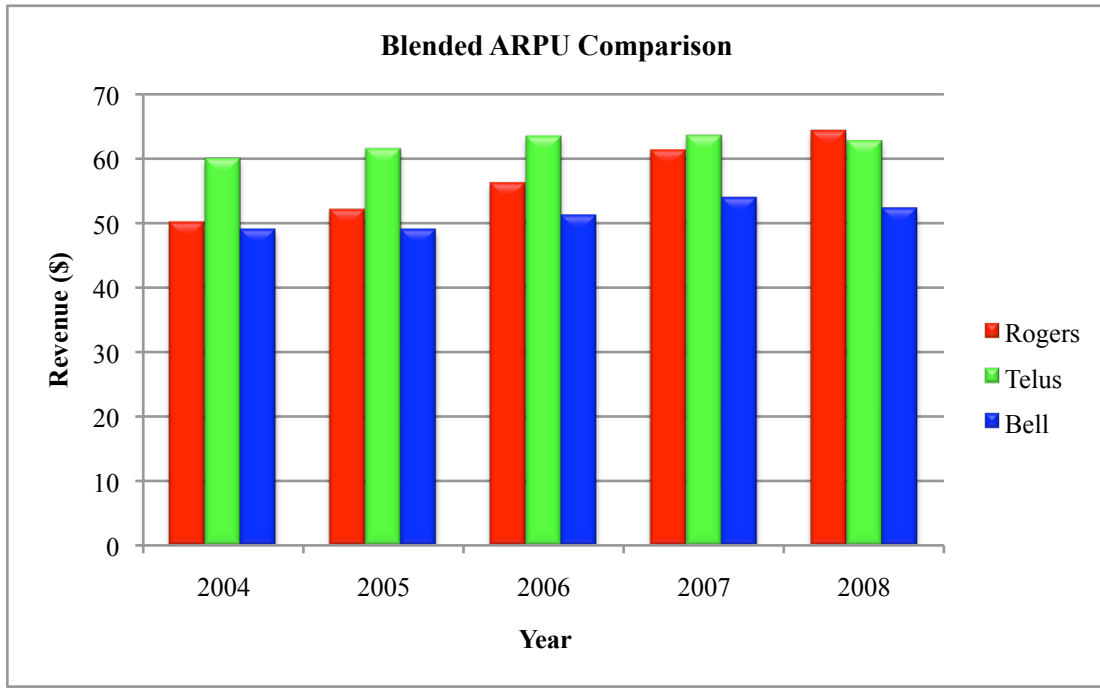
A higher ARPU suggests that on average, the company’s customers are spending more with them than the competition’s subscribers spend with their provider. Four out

of the past five years, Telus has led the industry with an ARPU at \$60 and above. Analysts have speculated that Telus's drop in ARPU in 2008 may be attributed to the launch of Koodo that year, which offers low-cost plans (no contract) starting at \$15 per month (Jay, 2008). However, this drop is not necessarily negative since it may allow Telus to further penetrate the market before it becomes saturated and it may help the company to lure subscribers from the competition. These new additions also have the potential to become premium subscribers in the long-run. However, in general the industry tends to covet steady revenues from post-paid contracts since they typically have a higher value than for pre-paid accounts and also provide a steady stream of revenue that can be used for capital expenditure planning to develop the network.

Rogers has been the most consistent, in terms of increasing ARPU year over year, surpassing Telus in 2008. This performance record is reassuring for Rogers, as this is the trend that providers want to see as the number of new customers available decreases and companies must look to generate growth by extracting higher revenues from their existing customers.

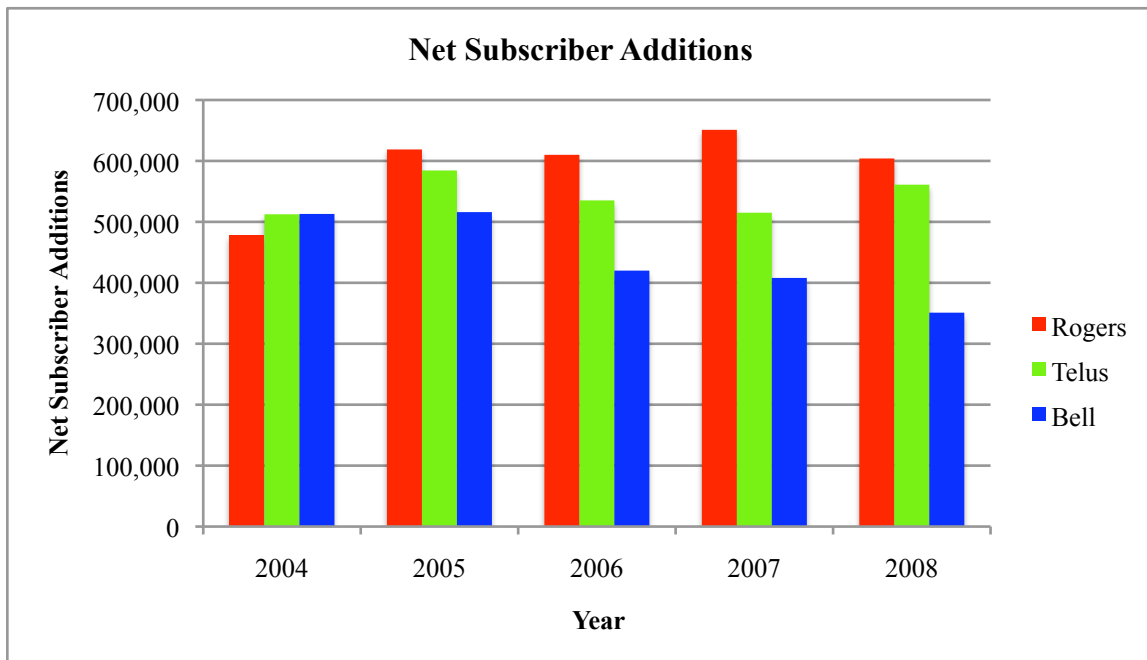
Bell lags behind the competition in this category. This may in part be attributed to Bell's higher proportion of prepaid subscribers. Bell has recently shifted its focus to the post-paid segment. In 2008, the company's prepaid net subscriber acquisitions decreased by 91%, while net post-paid subscriber additions increased by 61% (Bell, 2008). However, Bell's 2008 post-paid only ARPU still lagged behind Rogers's by just over \$9 (Bell, 2008 and Rogers, 2008).

Figure 9 Blended ARPU Comparison



4.2.2 Subscriber Growth

Figure 10 Net Subscriber Additions Comparison



Net subscriber growth describes how well a company is doing at retaining customers and adding new subscribers. It is calculated by subtracting permanent subscriber deactivations (ie. customers that leave the subscriber's service) over a period of time from gross subscriber additions (Forbes, 2001). It provides an indication of whether the company is able to offer a fresh mix of products to attract new customers and adequate levels of customer service to retain existing ones. Total industry net subscriber additions have fluctuated over the past five years, with a generally declining trend. While Roger's percentage of the total has been higher than Telus's since 2005, the companies have fluctuated in terms of whether they have increased or decreased their share . Roger's dramatic rise in 2005, may reflect the company's increased marketing and distribution capabilities as a result of completed integration following the acquisition of Fido. Bell's continuously declining net subscriber additions, irrespective of its lower absolute number of subscribers compared to Rogers is likely an indication that the company is not able to compete as effectively with Rogers and Telus. Over the past five years, Bell has on average had the lowest percent of customers leave its service (as described more specifically in the section on "Churn" below). This suggests that the company's weakness lies in its ability to attract new customers. This may stem from a combination of weak marketing initiatives or the inability to offer attractive products and competitive rate plans.

4.2.3 Cost of Acquisition

The cost of acquisition (COA) per gross subscriber provides an indication of the marketing expenditures, commissions and promotional discounts that a company must offer in order to attract a new subscriber. COA is calculated by dividing total sales and

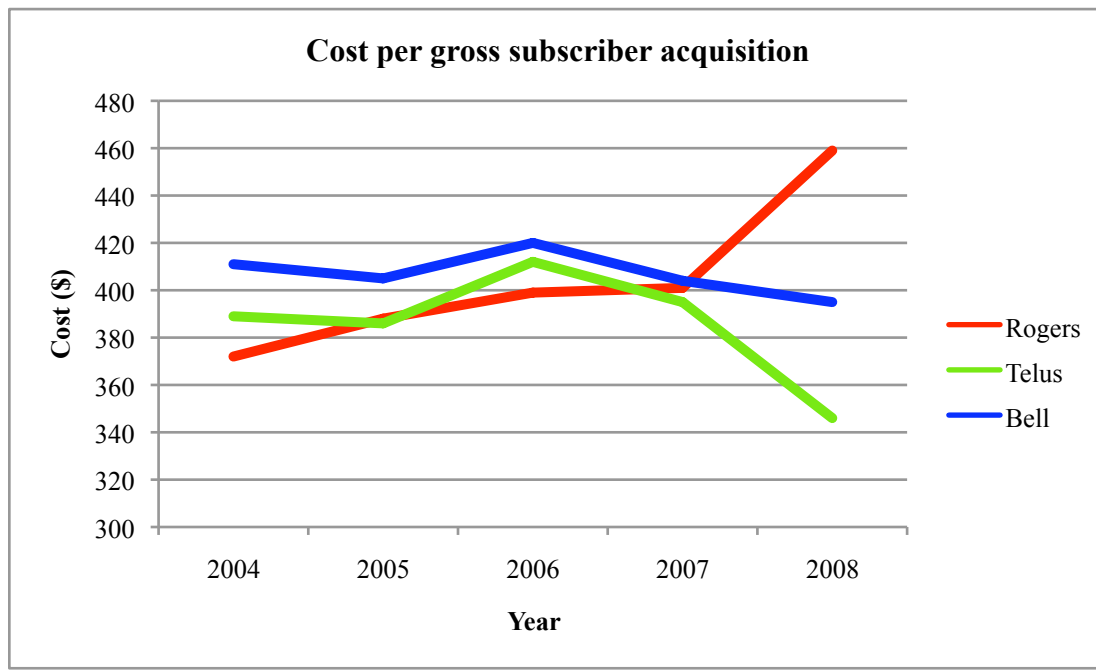
marketing expenditures (including commission), plus costs related to providing equipment (handset subsidies) to new subscribers, by the total number of gross subscriber activations given during a period (Rogers, 2008). Handset subsidies are a major component of COA, as it has become the industry norm to lure customers by offering discounts on the most attractive new phones. In exchange for the price break, companies are typically able to sign clients onto multiple year contracts.

Rogers's cost of acquisition has consistently risen over the years. This may reflect the company's ambitious attitude toward customer growth, which is reflected by its industry leadership, in terms of net subscriber additions. Rogers's sharp rise in costs for 2008 may be associated with its exclusive launch of the iPhone. The company provided the phone's at a heavily subsidized rate as a marketing tactic that would take advantage of the fact that to use the phone subscribers would need to purchase long-term plans that include data services. Prior to the launch of the iPhone in 2008, President and CEO Nadir Mohamed estimated the device would bring the company's overall blended ARPU to approximately \$90. This indicates the expectation that costly acquisitions are an investment in higher ARPU subscribers (George-Cosh, 2008). Mohamed's belief implies that the device will have a huge impact on the company's bottom line.

Telus's COA was in a closely comparable range to Rogers's COA (within \$15) until 2008, when Telus's costs dropped significantly. However, this drop does not appear to have negatively affected Telus's gross subscriber additions (up 15%). The company indicates that it is a reflection of increased marketing efficiency and gross subscriber loading toward lower variable cost channels (ie. prepaid and low-cost plans with lower subsidies) (Telus, 2008).

Bell's COA is higher than both Telus' and Rogers', in all years but 2008. This metric provides further evidence of Bell's weakness; since on average Bell must spend more money per new subscribers addition, indicating less efficiency in terms of acquisition spend. Bell's COA suggests that compared to the competition they are either forced to offer higher handset subsidies to each subscriber or spend more on marketing per new addition, or a combination of the two. With respect to marketing costs, this could also mean that their spending is less effective than the competition, in that they may be spending similar amounts of money upfront, but failing to convert this expenditure into new accounts.

Figure 11 Cost per gross subscriber acquisition



4.2.4 Churn Rates

Churn indicates the percent of customers that leave a service provider during a specified period of time. Churn rates reflect of a firm's ability to keep subscribers satisfied with high levels of service, upgrades to new products and competitive rates.

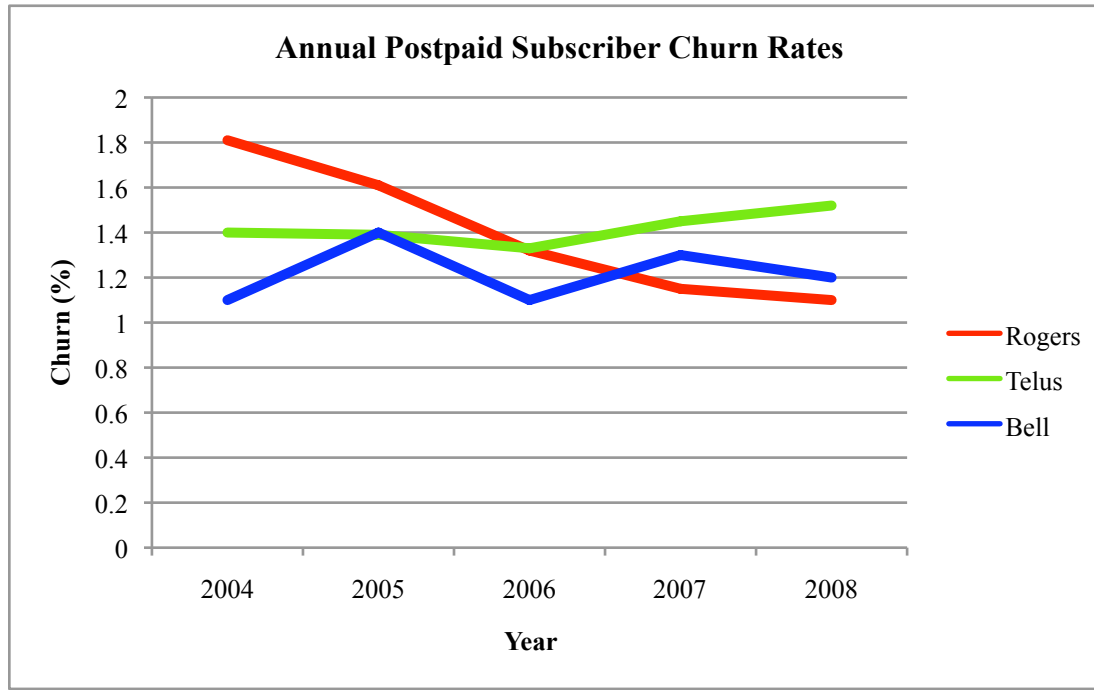
Furthermore, companies that are able to sign more customers to contracts and that spend more on retention (through incentives such as free handset upgrades) are able to decrease churn. Unfortunately, comparative figures for retention spending are not published.

Churn is a useful metric to examine when considering how the three incumbents will fair when new competitors enter the market and as mobile saturation levels increase.

Companies that are able to lower their churn rates are under less pressure to grow revenues through customer acquisitions.

Rogers continued ability to reduce its churn rate over the last five years suggests that the company has an effective strategy to increase retention and is in a strong position to protect its subscriber base as the market becomes increasingly competitive. Telus's churn rate has increased in the last two years and is on average the highest of all competitors, which may indicate a sign of weakness as the environment grows more competitive. Bell has been able to maintain a consistently low churn rate, which suggests that once they acquire subscribers, they are able to do a good job of keeping them satisfied.

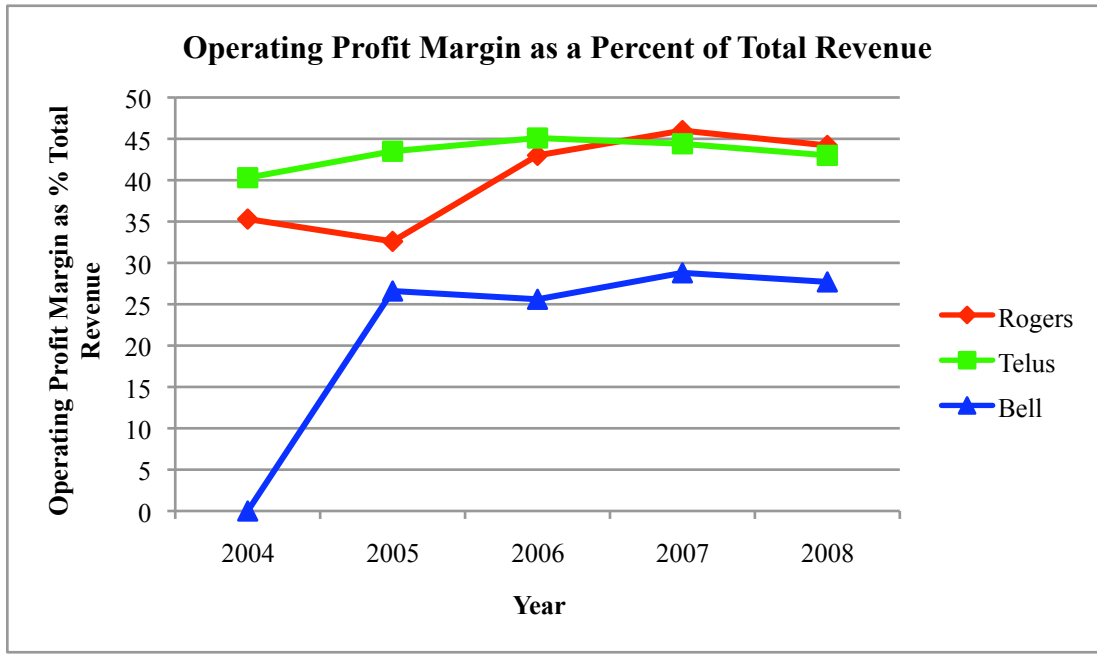
Figure 12 Subscriber Churn Rates



4.2.5 Operating Profit Margin as a Percent of Total Revenue

Operating profit (specific to the wireless segments of these companies) excludes the effects of capital expenditure, interest payments and taxes. This figure provides a convenient way to compare the profitability of companies given they may have different capital investment schedules. Rogers has made the most significant improvements to its operating profit margin over the last five years. However, Telus and Rogers appear to have been very close competitors over the past three years, suggesting they are in strong financial positions going forward. Consistent with its performance on other metrics, Bell's operating profit margin for its wireless segment is well below the other two competitors.

Figure 13 Operating Profit Margin as a Percent of Total Revenue



Note: information not available for Bell in 2004

4.3 Marketing Strategies

This section will examine how each company is competing to position itself in the market place. In order to compete, companies seek to introduce new promotions or iconic devices to appeal to first time subscribers and to provide an incentive for users to switch from the competitor. However, in most cases, there is a pattern of competitors quickly matching each other's offerings with similar products, services or deals.

The major firms have all adopted dual or triple brand approaches in order to appeal to different consumer segments. Competing at the lower end of the market are discount brands Fido, Koodo and Solo, owned by Rogers, Telus and Bell respectively. These basic branded services compete with Canada's MVNO's brands such as Virgin Mobile (also owned by Bell) and President's Choice.

Roger's Fido brand previously targeted urban young professionals, but has recently re-vamped its branding following Telus' launch of Koodo. Fido's new messaging puts more emphasis on targeting price-conscious first-time buyers (Sorensen, 2008).

Telus has described its Koodo brand as targeting Generation Y individuals who are fed up with paying for long-term contracts and services they don't use (Warren, 2008). When Telus launched Koodo in 2008, they offered plans at low rates, which were previously unheard of in the industry (\$15 dollars a month). They also eliminated system access fees and 911 charges that were billed by all operators at the time. Koodo's advertising campaign, which targeted hidden fees and unclear contracts was seen as a marketing coup that may partially account for Telus's ability to grab almost half of new subscribers added by the big three in the second quarter of 2008. However, the other discount brands in the industry quickly followed suit by dropping access fees and offering new low priced plans (Jay, 2008).

Bell has also made changes to strengthen its position in the discount segment. The acquisition of Virgin Mobile allows Bell to further segment customers by appealing to different aspects of the discount market. Bell's Solo brand specifically targets young Canadians aged 13-24, while the Virgin Mobile brand, which will remain independent in the eyes of the consumer, also appeals to a youth market (18-35) and is known for its more provocative and edgy advertising campaigns. Bell's acquisition of Virgin Mobile allowed the company to expand its subscribers base at a lower cost of acquisition than it would have to pay to acquire these subscribers through its two existing brands (BCE, 2009).

Telus, Rogers and Bell, as brands, are often described as serving the premium market, as these brands typically sell the latest smartphones and higher-end service contracts. However, it is important to note that these brands are not exclusively focused on the premium segment. They offer a wide assortment of handsets and plans to suit any customer looking for mobile services. However, Telus, Rogers and Bell generally charge system access fees that have been eliminated from their discount counterparts. The companies say that these charges are used for ongoing maintenance and investment in their networks (Nowak, Goodbye to cellphone system access fees?, 2008). However, since the big three are not charging these fees to their discount brand subscribers, they are to a certain extent relying on subscriber's being unaware that those brands are associated with the parent company or being ignorant of the issue altogether. However, Rogers, Telus, Bell, MTS Allstream and SaskTel are currently facing a \$20 billion class-action lawsuit over system access fees. Regina-based lawyer Tony Merchant claims that for years the companies have misrepresented the charges as government-mandated fees (Nowak, Goodbye to cellphone system access fees?, 2008). Merchant also launched a similar lawsuit over the carrier's 911 fees, in the summer of 2008 (Nowak, Goodbye to cellphone system access fees?, 2008).

A survey of the operators' websites suggests that their post-paid plans and prices are almost identical, although they may be branded differently. Operators will typically have only one or two limited-time offers that stand out from the competition and give them a temporary window of time to try and gain market share by sacrificing price. However, such promotions are usually kept to a short duration by the operator or, they are matched by the competitor. For example, Rogers has a series of MY5 plans that allow

subscribers unlimited talk and text with five friends. When introduced, Rogers heavily advertised this service. Telus and Bell also offer an identical service but it is not branded under a special name. The rates and terms on these plans are nearly identical. In other cases, plans are offered at the same price point with one minor variation of service (see appendix B for an example). Therefore, while price are comparable, users must determine which services are the most value to them.

One of the primary ways that operators are able to distinguish themselves is through the handsets they sell. These are typically offered at subsidized prices and are a key incentive for customers to sign long-term contracts. In this regard, Rogers has a slight advantage in that it has access to a larger array of handsets due to the type of network its devices run on (see section 5.4 below). Among these handsets is the iconic Apple iPhone.

In terms of services for the business segment, Telus has a unique position with its Mike branded services that are targeted primarily at businesses in the areas of construction, automotive, and oil and gas. Mike offers Push-to-Talk technology that works like a two-way radio and allows for easy group calls. These handsets run on Telus's enhanced specialized mobile radio network, the only network of this type in Canada.

4.4 Technology Platforms

Rogers operates on a GSM/General Packet Radio Service (GPRS) network, with EDGE technology (3G). By contrast, Telus and Bell operate on CDMA networks with the 3G technology EVD0. These two operators have had a network sharing and roaming agreement in place since 2001. Rogers has also recently deployed Universal Mobile

Telecommunications System (UMTS)/High Speed Packet Access (HSPA) technology, the next phase of the evolution of the GSM/EDGE platform, which delivers high mobility, high bandwidth data services across major urban centers (this network covers 75.6% of Canada's population). Rogers HSPA supports download speeds of up to 7.2 Mbps and is referred to as 3.5G technology. This is faster than Telus' and Bell's network (3G) that supports speeds of up to 3.1 Mbps.

One competitive advantage of Rogers' GSM network platform (the only one in Canada) is that it allows the company access to a greater breadth of handsets often at lower costs (Telus, 2008). Different handsets must be designed to utilize either GSM or CDMA but not both; although this does not preclude different versions of the same device being manufactured for both. Rogers' better access to handsets is likely a reflection of the fact that worldwide GSM networks have 73% market share, versus 14% for CDMA (Which technology is better: GSM or CDMA?, 2008). Therefore, handset manufacturers produce more GSM compatible devices and it is possible that they may be manufactured in greater quantities and therefore sold at a lower cost. Producing for both technologies requires double the development effort and is not always worthwhile for highly popular devices that sell well through GSM distributors. Furthermore, the attitude among handset makers such as Apple, is that CDMA is becoming less attractive as providers transition away from the technology with their next generation upgrades (McClean, 2009). In 2008, Rogers became the exclusive distributor of the iconic Apple iPhone, as well as Research In Motion Ltd's popular Blackberry Bold (both are only GSM compatible). Telus believes that Rogers' introduction of the iPhone at a \$199 price point in mid 2008 negatively affected its wireless margins because it led to

discounts for all smartphones in Canada. These smartphones typically cost between \$600-\$800 ((Telus, 2008). However, Rogers had an incentive to discount the phone with the belief that its popularity would attract a significant number of customers who would sign contracts with data plans, which yield higher than average revenues.

As the only Canadian operator of a GSM network, Rogers has also benefited from roaming partnerships with other foreign operators. Thus, Rogers has had access to additional roaming revenues without any competition from the other two industry leaders.

In 2008, Bell and Telus announced an agreement to share the costs of overlaying their network with the latest version of HSPA technology by 2010. HSPA is part of the GSM evolution path. This upgrade was announced as a step toward an eventual transition to 4G LTE (GSM), which is emerging as a global standard. Rogers has already implemented HSPA technology to improve the speed of its network. This upgrade will put pressure on Rogers, as it will give Telus and Bell the capability to support the same GSM/HSPA handsets as Rogers. Thus, Telus and Bell could potentially sell the iPhone or similar devices that will be developed in the future (Sorensen, 2009). The upgrade will also give Telus and Bell access to roaming agreements with foreign operators or new carriers. Rogers, on the other hand, may be able to benefit from its years of experience with GSM based technologies, as HSPA and LTE are part of the evolutionary path for GSM operators. Thus Bell and Telus's plans represent a shift away from their CDMA path. Telus and Bell's announcement came shortly after the 2008 auctions. The move may be regarded as strategically timed, since it will allow these two incumbents to run on the latest technology (ahead or in line with new entrants). Furthermore, new entrants will need to negotiate roaming agreements while they build

out their networks. HSPA networks would be the primary choice for those companies offering voice and data service, which means Bell and Telus can compete with Rogers for these revenues. There is speculation that potential roaming revenues may be important in lieu of lost market share (George-Cosh, 2008).

4.5 Preparation for new competition

As a result of the 2008 spectrum auctions, several companies acquired spectrum licenses. To date, four companies have announced plans to launch services. They include DAVE Wireless, Public Mobile, Globalive Wireless and Quebecor-Videotron. Only Globalive is planning a national network, while DAVE Wireless will focus on several metro areas.

Incumbent firms have already taken steps to defend themselves against the threat of new competition. Industry Canada has mandated that incumbents share infrastructure and negotiate roaming agreements with new entrants to help them support customers and minimize costs while they roll-out their own networks. Iain Grant, managing director of SeaBoard Group, a Montreal based telecommunications consultancy suggests that incumbents have likely built a defense against the new entrants by making plans to expand their networks. The government's rules say that incumbents have to share antennas if there is unused capacity, but expansion plans, such as Telus and Bell's announcement to overlay their networks with HSPA, may require the carriers to use most of their extra capacity to run their new services, forcing new players to rely on their own networks (Solomon, 2008). These improvements to network technology (already deployed by Rogers) will also ensure that all three incumbents are able to offer devices that run on the latest, fastest technology. This will set the standard for new incumbents,

forcing them to build networks to the latest technological specifications in order to offer competitive products and services.

Another strategic move by the incumbents has been the strengthening of their position in the discount market. Several new entrants have announced that they would like to take advantage of consumers' discontent with current providers and target the low-end market to reach out to first time cell phone users. However, the industry has already taken strides to address many of these concerns. The process began in 2008 with the introduction of the Koodo brand, which introduced new budget rates and eliminated hidden fees (refer to section 4.3 for details).

Bell has also taken action to expand its distribution network. In March 2009 the company purchased consumer electronics chain The Source, out of bankruptcy protection. The acquisition of 756 The Source stores doubled Bell's current number of corporate owned or licensed stores to 1,450 compared with Rogers, which has 1,100 stores and Telus, with about 800 stores (Flavelle and Sorensen, 2009). The purchase also helps Bell to curb its competitor Rogers's distribution network. Rogers's phones are currently distributed by The Source, but the contract will expire at the end of 2009, at which point the stores will start selling Bell's products and services (Flavelle & Sorensen, 2009).

4.6 Conclusions

In terms of growth prospects for the future, based on the analysis using key industry metrics, Rogers and Telus both appear well positioned to continue as industry leaders. Rogers' ongoing ability to improve its performance in key areas such as blended ARPU and churn rate, suggests that the company is successfully executing a strategy to

improve the quality and retention of its customer base. Rogers also leads the industry in terms of yearly net subscriber additions and will enter the forthcoming period of increased competition with the largest established subscriber base. Based on the performance metrics, Telus has also demonstrated consistently strong results over the years, even as Rogers has improved its abilities in some areas. Telus has rivaled and even outperformed Rogers over the last five years in the key measures of blended ARPU and operating profit margin. Furthermore, while Telus's total subscriber base is slightly smaller than Bell's, the company appears to have a better track record for acquiring new customers and does so at a lower COA than both its competitors.

Bell lags behind its competitors in almost all areas, although its total subscriber base is slightly larger than Telus's and the company does have fairly low churn rates. Bell's recent changes may be looked at to provide clues as to why the company has trailed behind its competitors. The acquisitions of Virgin Mobile and The Source both address weaknesses in Bell's distribution network, which may have contributed to the company's underperformance in attracting and retaining subscribers. Furthermore, Bell's decision to overhaul the company's corporate image and acquire Virgin Mobile, which as an MVNO specialized in marketing services, may be taken as a sign that the company felt it was in an inferior position to competitors, when it came to orchestrating effective and memorable advertising campaigns. Lastly, Bell's new corporate strategy is focused on improving the cost efficiency of its operations, in part through restructuring. This may help Bell catch up to competitors in terms of generating healthier profit margins. Bell is currently displaying a strong degree of momentum that is anticipated to help improve its wireless results and ensure the company is in a strong position to face new competition.

Thus, although Bell's performance on industry metrics is poorer than its competitors, it is very difficult to count out the telecommunication industry's largest player.

In the last few years, Rogers appears to have gained a slight competitive advantage as the only operator in Canada of a GSM network, Rogers has had access to highly popular Blackberry and Apple devices that are only compatible with GSM technology. These devices, particularly the iPhone, are seen as drivers of high ARPU. Rogers is also ahead of competitors in pioneering new services such as Fido UNO and Rogers Home Calling Zone plans (introduced in 2008) that capitalize on technologies that could otherwise become a threat. These plans encourage subscribers to have just one phone in their lives by allowing them to make unlimited calls from their cell phones when in their homes by using a home WiFi broadband connection (see section 3.6 for an explanation of how WiFi works). Furthermore, Roger's network is one step ahead of its competitors in terms of technology implementation, which shows its leadership in the industry and allows it to advertise the fastest download speeds. On the other hand, Telus and Bell have still been highly competitive with their CDMA technology and have been able to share the costs of rolling out their networks. From a technological perspective, it is difficult to predict where the industry will be in five years and which company will be best positioned, as standards are always evolving and disruptive technologies may threaten business models at any time.

Given that the market share held by the big three is 95%, there is speculation that the new entrants may need to merge in order to make an effective entry in the market. With the exception of Globalive's Yak long-distance brand and a few of the cable companies, such as Quebecor (other cablecos purchased spectrum but have not yet

announced any market entry plans), the potential new players have limited brand recognition. Furthermore, capital expenditures for network development will be high, which means the pressures to quickly build market share will be strong. This situation may be difficult for new companies if several emerging brands are all competing for subscribers. A possible scenario could see new entrants acquired by existing companies, as was the case of Microcell's Fido, a disruptive new entrant that acquired 1.2 million subscribers (and a shackling debt load) before being acquired by Rogers in 2005 (Nowak, What if Telus bought Fido, 2008). However, government rules prevent such a sale until 2013 (Jay, 2009).

5. Future Outlook

5.1 Key challenges

This section identifies key areas that all the carriers need to focus attention on in order to strengthen the industry and ensure its vitality in the future. It also discusses emerging areas of interest, which if considered by carriers now, may ultimately develop into important revenue drivers in the future.

5.1.1 Increasing the mobile penetration rate

Canada's mobile penetration rate is estimated at 70%, which suggests that around 30% of the population is still not using mobile devices. A higher penetration rate brings the promise of higher revenues, even if new subscribers bring in lower ARPUs. The government's assistance to new entrants may turn out to be a key strategic move toward increasing Canada's penetration rate, provided these new entrants excite competition, which leads to lower prices that are taken advantage of by first-time users. With respect to wireless prices it is difficult to determine if Canada's prices are more expensive than those in other countries and therefore, if price is in fact a key driver of penetration rates. Country to country price comparisons are complicated due to the way in which minutes, data plans and extras such as voicemail and caller identification are bundled into different packages. However, a Canadian Library of Parliament publication released in late 2008 found that three of four studies available showed Canadians pay more for their wireless services (Kustra, 2008).

5.1.2 Managing network capacity

The increased uptake of data services is being reported with much fanfare in carriers' annual reports since data plans boost revenue growth. However, the trend toward data adoption also presents a challenge for carriers who need to ensure their networks have the capacity to support such services. Mike Lazaridis, Co-CEO of Research in Motion Ltd., explains the situation in laymen's terms.

A smartphone customer using a moderate two gigabytes of data a month - about the equivalent of downloading three movies - is consuming the same bandwidth as one who spends more than 10 hours a day talking with his mobile phone. Put another way, today's smart phone demands the same amount of capacity on a wireless network as 40 regular cell phones (Avery, 2009, B6).

The consumer behaviour described by Lazaridis requires billions of dollars in capital expenditure in order to ensure networks are robust enough to handle internet traffic at the quality of service expected by customers.

The relationship between data services and network capacity presents two key strategic challenges for firms. Firstly, firms must make critical decisions about technology investments today, before exact information about demand is available. This involves closely monitoring the market to anticipate what services will be adopted and by how many subscribers will need to be supported. Secondly, since companies must spend billions of dollars to build robust capacity, they must ensure that they make a timely a return on their investment, without resorting to charging customers prices that lead to subscriber losses. In this regard, operators must look at value added services and new products that will service subscribers infotainment needs. This challenge is discussed in more detail below.

5.1.3 Deploying and Monetizing Value-Added Services

In their analysis of the Canadian Wireless Industry, prepared for Industry Canada, Kazam Technologies Inc., suggested that the Canadian market is lagging comparable industries in other developed nations when it comes to looking for innovative ways to build revenue outside of voice (Kazam Technologies Inc., 2007). Creating and monetizing value added services is key to generating a return on infrastructure investments that are made to support subscribers data needs. Examples of these value added services include enhanced messaging services and content applications such as GPS and mobile TV. Kazam's analysis is that Canadian operators currently take a "smart follower" approach to technology, by watching mature markets such as Japan and Korea to see what is popular and then adopting it 18-24 months later. To a certain extent, Kazam admits this makes business sense, as it allows Canadian companies to minimize risk by seeing what works. It could also reflect a lesser degree of competition in the marketplace, which means that Canadian companies do not feel pressure to compete at the same level as in these mature markets. However, the implication is that while companies in these mature markets focus on creating demand for new services and thereby reap the financial benefits, Canadian operators are more focused on serving a demand if it arises. Thus, they are not as aggressive in marketing value added services, creating awareness and reaping the financial benefits. However, being able to create and monetize new content and services will become increasingly important in the future, especially as competition intensifies and as greater investments are made in network infrastructure.

Mobile content will likely become an increasingly important revenue stream for wireless providers if more subscribers become accustomed to seeing both voice and data services as a mainstay. In order to deliver better content to subscribers, operators in Canada may need to consider closer partnerships with content developers, according to Kazam Technologies:

A more open and dynamic ecosystem for mobile content and applications is needed in Canada. In South Korea, operators and content providers share more revenues with content developers and aggregators and invest in innovative content development companies. (2007, p. 221)

In essence, South Korea's mature market reflects a closer integration of the value chain. Operators and developers in Korea are also known to partner together to market new content. Currently, companies such as Rogers and Telus offer their own music stores, games and applications such as GPS. However, serious competition over content has not yet emerged in Canada as a differentiating factor, although such competition could be on the horizon, if other international markets are an indication of future trends.

5.1.4 Mobile Commerce

Mobile Commerce is a catch-all phrase used to describe commercial transactions that are enabled through mobile technology (Kazam Technologies Inc., 2007). Rogers, Bell and Telus have formed a joint venture with technology company EnStream LP to launch a new service called Zoompass that enables consumers to transfer money over their phones. The system is currently focused on the consumer market but could have applications for businesses that don't want to accept credit cards because of the fees involved (Ruffolo, 2009). While mobile commerce is still in the development stages, if operators can have a stake in development, they may gain access to new revenue streams

that result from changes in the way people purchase goods. According to a recent study by research firm Gartner Inc., worldwide mobile payment users will total 74.4 million in 2009, a 70% increase over the preceding year. By 2012, the number is expected to surpass 190 million users (Gartner Inc., as cited in Ruffolo, 2009).

5.2 Recommendations

5.2.1 Leveraging Strengths

As new competitors enter the market, the incumbent players may be exposed to aggressive marketing campaigns and competitive pricing. Price competition from new carriers will be required for their entry into the market, particularly since existing subscribers will see it as a hassle to switch providers and may be giving up some of the perks (such as added minutes or free services) that they have received for being loyal customers. One of the best ways to gain market share will be to offer lower rate plans or packages with unlimited data and voice. However, another avenue for competition will be based on customer relations and service. This competition would capitalize on public sentiment regarding generally poor customer service, as well as discontent over the industry's "hidden fees," misleading contracts and long/inflexible contracts. In order to tackle these two areas of vulnerability, carriers will likely need to reevaluate and strengthen customer relations strategies and/or increase retention spending.

Existing carriers should combine such improvements with strategies that leverage their current strengths. Existing sources of advantage include carriers' large subscriber bases, bundling capabilities, network size and dependability, dual and triple brand strategies, and financial capabilities.

- **Subscriber base:** The top three providers have over 6 million subscribers each. It is cheaper for the carriers to retain customers than acquire new ones, giving the incumbents a huge advantage over newcomers. If carriers can make gestures to address the needs of their existing customers who may be unhappy with their current services, then they will protect themselves from having these customers poached when new companies enter the market. It should be the goal of incumbent companies to create a marketplace in which new companies only have access to the pool of subscribers who currently are not cell phone users. Additionally, given the size of their subscriber base, incumbent carriers will be in an advantageous position to negotiate with handset manufacturers for exclusive distribution agreements for the latest phones.
- **Bundling capabilities:** All three of the major players benefit from offering a variety of telecommunications and entertainment services such as TV and internet. Thus, compared to most new competition, they may offer subscribers the convenience of having all their services delivered from one provider, at a discounted fee. Bundling may become an ever more important strategy for preventing customers from switching and locking in new subscribers before new players arrive on the scene
- **Network size and dependability:** New subscribers will likely be weary of the quality and reliability of new providers' services. One of the new entrants purchased spectrum in the 1.9 Ghz band, considered less desirable (and less costly) because of its lower capacity and potential to be incompatible with handsets (Solomon, 2009). The merits of this spectrum has already been discussed in the press, as the company holding the spectrum was publicly targeted by another new entrant (Solomon, 2009). Regardless of spectrum quality, given that the incumbents have been operating their networks for years, it would not be surprising to see future advertising campaigns emphasizing the dependability and quality of the big threes' networks.
- **Dual and triple brand strategies:** With two to three brands in the market, each of the major carriers is able to better segment the market to appeal to different consumer tastes and demands. This flexibility will undoubtedly help protect incumbents as new players who enter the market must establish their brands in the eyes of consumers and will only be able to compete in one or possibly two segments.
- **Financial capabilities:** As discussed, the financial barriers to entering the industry are high. New players will focus on building their networks while also making expenditures to secure subscribers. On the other hand, existing carriers can leverage the fact that they have more financial flexibility to invest in exploring new technologies, developing closer collaborative relationships with content and applications providers, and piloting new services. The rate of change in the industry means that providers cannot be complacent because their current

services are highly profitable and they have contracts that secure their customers in the face of new competition.

5.2.3 Flexibility in business models

For all mobile service providers, new and old, the industry faces a future where technological innovations could change the traditional nature of operations. Whether it is mobile commerce or wireless mesh networks, new competitive services and technologies are likely to threaten the way in which service providers currently operate. Before or as new disruptive technologies reach tipping points, the traditional wireless operators will need to consider modifications to their billing models or technology choices in order to respond to the competition. Sticking to traditional rate plans, in light of new low-cost WiFi data plans such as Conego's Toronto area plan, or banning VoIP services from phones may be short-term solutions. After all, at present, such WiFi plans are only available in select spots and quality VoIP services are not readily available. However, there is a chance that innovations like these could develop in the future. Therefore, carriers must anticipate when the momentum of the market may switch in another direction and accordingly, they must be flexible with how they package their service. There may be an opportunity to develop partnerships with "new" service providers like Conego, in order to offer value to subscribers and limit the effect of such services on revenues.

6. Conclusion

At present the industry is an attractive place for mobile wireless providers. It is characterized by high profit margins, a compound annual growth rate of nearly 16% over the past five years and continued opportunities to add new subscribers. The popularity of smartphone devices is also fueling market growth by allowing carriers to earn higher revenues by selling more to their existing customers. The high concentration of players seems to work towards protecting the industry's profitability, as consumers are limited in their options.

The fast pace of development in the industry may be good news for carriers, as it suggests that their product's appeal will continue to evolve, offering new opportunities to engage customers and maintain revenues. At the same time, companies are at risk of falling behind the competition if they fail to make the right decisions with respect to new technologies or strategies for dealing with competitive mobile offerings. As society becomes more accustomed to entertainment, communications and information on the go, the possibilities for mobile phone functionality extend beyond our current imagination. Industries such as advertising, banking, gaming and security could all begin to play an increasingly significant role in the industry.

Given the industry's attractiveness, it is not surprising that new firms are interested in breaking into the marketplace, especially with the support of the government. It remains to be seen if new entrants can make an impact in an industry where the top three players have become well established and are already taking measures to maintain their positions. Ultimately, it would not be surprising to see new

competitors form an alliance in order to challenge the incumbents and carve out market share in this lucrative industry.

Appendices

Appendix A: Key Operating Metrics: 2004-2008 Data

Key Operating Metrics: 2004-2008					
Operating Metrics:	2004	2005	2006	2007	2008
Total Operating Revenues					
Rogers	2,689,000,000	3,860,000,000	4,580,000,000	5,503,000,000	6,335,000,000
Telus	2,833,000,000	3,319,000,000	3,881,000,000	4,291,000,000	4,660,000,000
Bell	2,818,000,000	3,428,000,000	3,849,000,000	4,164,000,000	4,481,000,000
Operating Network (only) Revenues					
Rogers	2,502,000,000	3,614,000,000	4,313,000,000	5,154,000,000	5,843,000,000
Telus	2,599,900,000	3,064,600,000	3,605,500,000	4,008,000,000	4,369,000,000
Bell		3,054,000,000	3,464,000,000	3,773,000,000	4,058,000,000
Wireless Data Revenue					
Rogers	142,000,000	297,000,000	459,000,000	683,000,000	946,000,000
Telus	n/a	130,600,000	2,799,000,000	445,161,290	690,000,000
Bell	n/a	n/a	n/a	n/a	n/a
Data Revenue as a Percent to Total Revenue					
Rogers	5.7%	8.2%	10.6%	13.2%	15.0%
Telus	n/a	4.3%	7.7%	11.1%	16.0%
Bell	n/a	n/a	n/a	n/a	n/a

Continued on next two pages

Sources: All data was derived from the annual financial reports of Rogers Communications Inc., BCE Inc., and Telus Corporation 2004-2008

	2004	2005	2006	2007	2008
Operating Profit and Operating Profit as a percent of Total Operating Revenues					
Rogers operating profit	950,000,000	1,337,000,000	1,969,000,000	2,532,000,000	2,797,000,000
Operating profit as percent of total operating revenues	35.3%	34.6%	43.0%	46.0%	44.2%
Telus operating profit (also reported as EBITDA)	114,200,000	1,445,000,000	17,529,000,000	1,906,000,000	2,005,000,000
operating profit as adjusted				1,930,000,000	2,005,000,000
operating profit as a percent of total operating revenues	40.3%	43.5%	45.1%	44.4%	43.0%
Bell operating profit	not reported sep.	912,000,000	984,000,000	1,198,000,000	1,241,000,000
operating profit to total operating revenue	n/a	26.6%	25.6%	28.8%	27.7%
Total Postpaid Retail Subscribers					
Rogers	5,518,200	6,168,000	6,778,000	7,338,000	7,942,000
Telus	3,936,400	4,520,700	5,055,900	5,568,000	6,129,000
Bell (total pre and post)	3,743,000	4,026,340	5,954,023	6,216,000	6,497,000
Net Subscriber Additions					
Rogers (postpaid)	446,100	603,100	580,000	581,000	537,000
Rogers (prepaid)	32,500	15,700	30,000	70,000	67,000
Telus (postpaid)	428,500	426,500	411,800	365,000	481,000
Telus (prepaid)	83,900	157,800	123,400	150,000	80,000
Bell (postpaid)	513,000 (pre and post)	516,000 pre and post	293,000	206,000	332,000
Bell (prepaid)			127,000	202,000	19,000

	2004	2005	2006	2007	2008
ARPU					
Rogers (postpaid only)	59.50	63.56	67.27	72.21	75.27
Rogers (prepaid only)- see below for blended calculation	11.80	13.20	13.49	16.46	16.65
Telus blended	60.00	61.51	63.46	63.56	62.73
Bell blended	49.00	49.00	51.18	53.92	54.29
Monthly Churn (postpaid)					
Rogers	1.8%	1.6%	1.3%	1.2%	1.1%
Telus	1.4%	1.4%	1.3%	1.5%	1.5%
Bell	1.1%	1.4%	1.1%	1.3%	1.2%
COA Per gross subscriber addition					
Rogers	372	388	399	401	459
Telus	389	386	412	395	346
Bell	411	405	420	404	395

Rogers Blended ARPU calculation	2004	2005	2006	2007	2008
Postpaid Voice and data revenue	2,361,100,000	3,384,000,000	4,084,000,000	4,868,000,000	5,548,000,000
Average number post-paid subscribers	3,306,900	4,435,800	5,059,600	5,618,000	6,142,000
Prepaid Voice and data revenue	116,700,000	210,000,000	214,000,000	273,000,000	285,000,000
Average number of prepaid subscribers	818,500	1,323,200	1,322,000	1,382,000	1,426,000
Voice and data revenue	2,477,800,000	3,594,000,000	4,298,000,000	5,141,000,000	5,833,000,000
divided by average number of subscribers	4,125,400	5,759,000	6,381,600	7,000,000	7,568,000
Divided by 12	12	12	12	12	12
Rogers Blended ARPU	50.05	52.01	56.12	61.20	64.23

Source: calculation method and data obtained from Rogers Communications Inc. annual reports, 2004-2008

Appendix B: Comparison of \$25 rate plans offered by the big three

Carrier to carrier comparison of \$25 rate plans		
Rogers	Bell	Telus
<p>Mega value \$25 with 1000 Messaging</p> <p>-100 plus 50 bonus weekday minutes -unlimited evenings and weekends from 9pm -1000 messages -Rogers.com \$10 activation credit (web offer only)</p>	<p>Uber \$25 Incoming</p> <p>-100 local minutes 50 bonus minutes. -unlimited nights and weekends local minutes (9 p.m. - 7 a.m.) -500 incoming minutes</p>	<p>Your Choice \$25 Plans</p> <p>Includes: -up to 100 local anytime minutes -up to 50 bonus anytime minutes</p> <p>Plus your choice: -unlimited local talk, text, picture and video messaging with your 5 favourite numbers -double anytime minutes -1000 outgoing and unlimited incoming text, picture and video messages</p>
<p>Mega \$25 with My5 local</p> <p>-same as above, but no messages, instead My5 local</p>	<p>Uber \$25 fab five</p> <p>-100 local minutes 50 bonus minutes -Unlimited nights and weekends local minutes (9 p.m. - 7 a.m.) -local Fab Five</p>	
<p>Mega Value \$25 with double your minutes</p> <p>-200 plus 50 bonus weekday minutes -unlimited evenings and weekends from 9pm -Rogers.com \$10 activation credit (web offer only)</p>	<p>Anytime \$25</p> <p>-250 minutes -unlimited evenings and weekends (9p.m.-7a.m.)</p> <p>Uber \$25 extended hours</p> <p>-100 local minutes 50 bonus minutes -Unlimited nights and weekends local minutes (6 p.m. - 7 a.m.)</p>	

Source: Rogers Communications Inc., Telus, and BCE websites 2009

Bibliography

- Alam Khan, M. (2008, August 21). North American mobile market approaches saturation, warns Forrester. Retrieved June 25, 2009, from *Mobile Marketer*:
<http://www.mobilemarketer.com/cms/news/research/1576.html>
- Avery, S. (2009, June 17). Telecom firms face capacity conundrum. *Globe and Mail*, p. B6.
- Bell Canada Enterprises. (2005). *BCE 2005 Annual Report*. Retrieved July 11, 2009, from BCE:
<http://www.bce.ca/en/investors/financialperformance/annualreporting/index.php>
- Bell Canada Enterprises. (2006). *BCE 2006 Annual Report*. Retrieved July 11, 2009, from BCE:
<http://www.bce.ca/en/investors/financialperformance/annualreporting/index.php>
- Bell Canada Enterprises. (2007). *BCE 2007 Annual Report*. Retrieved July 11, 2009, from BCE:
<http://bce.ca/en/investors/financialperformance/annualreporting/index.php>
- Bell Canada Enterprises. (2008). *BCE 2008 Annual Report*. Retrieved July 11, 2009, from BCE:
<http://bce.ca/en/investors/financialperformance/annualreporting/index.php>
- Bell Canada Enterprises. (2009). *bce.ca*. Retrieved July 12, 2009 from <http://www.bce.ca>.
- Bell Canada Enterprises. (2009, May 7). *Bell Mobility acquires full ownership of Virgin Mobile Canada*. Retrieved July 12, 2009, from BCE:
<http://www.bce.ca/en/news/releases/bm/2009/05/07/75140.html>

- Canadian Wireless Telecommunications Association. (2009). *Wireless Facts and Figures*. Retrieved July 11, 2009, from Canadian Wireless Telecommunications Association: <http://cwta.ca/CWTASite/industryfacts.html>
- Datamonitor. (August 2008). *Wireless telecommunication services in Canada: Industry Profile*. Datamonitor.
- Datamonitor. (2008, July 7). *BCE Inc.* Datamonitor.
- Flavelle, D., & Sorensen, C. (2009, March 03). Bell buys 756 stores from The Source. Retrieved July 12, 2008 from *TheStar.com*:
<http://www.thestar.com/article/595445>.
- George-Cosh, D. (2008, June 17). Rogers plans pricing changes ahead of iPhone. *National Post* .
- Harris, M. (June, 4 2009). Cellphones poised to overtake PCs for web: study. *CanWest News*, Retrieved July 12, 2008 from
<http://proxy.lib.sfu.ca/login?url=http://proquest.umi.com/pqdweb?did=17415164414Fmt=3&clientId=3667&RQT=309&UNare=PQb>.
- Harris/Decima. (2008, September 12). *2008 Wireless Attitudes Study*. Retrieved June 8, 2009, from Canadian Wireless Telecommunications Association:
<http://cwta.ca/CWTASite/English/industryfacts.html>.
- Industry Canada. (2008, May 27). *Government of Canada opens up wireless industry to more competition*. Retrieved June 23, 2009, from Industry Canada:
<http://www.ic.gc.ca/eic/site/ic1.nsf/eng/64212.html>
- Jay, P. (2008, September 10). Aim low, shoot high: Telus scores with discount Koodo brand. Retrived July 12, 2008 from *CBCNews.ca* .

- Jay, P. (2009, June 22). New entrants seek to change wireless game. Retrieved July 12, 2008 from *CBCNews.ca*:
<http://www.cbc.ca/technology/story/2009/06/19/wireless-entrants-globalive-dave-public-mobile.html>
- Kavur, J. (2009, June 22). *iPhone users get unlimited WiFi for \$5 a month, no kidding*. Retrieved July 1, 2009, from ITWorldCanada Communications and Infrastructure- Carriers and Cellular: <http://www.itworldcanada.com/a/Daily-News/53f83f40-58f3-4e7b-895c-a07aa7c2625f.html>
- Kazam Technologies Inc. (2007). *The Canadian Wireless Industry: Analysis, Positioning and Capabilities 2006-2009*. Saint-Lazare, Quebec, Canada.
- Kustra, T. (2008, October 10). *Library of Parliament*. Retrieved June 22, 2009, from <http://www.parl.gc.ca/information/library/PRBpubs/prb0826-e.htm>
- Lloyd, J. (2008, June 16). Koodo works up a sweat. *Marketing Magazine* .
- McLean, Prince. (2009, April 22). *Apple Happy with AT&T, indicates no plans for CDMA iPhone*. Retrieved July 17, 2009, from Apple Insider:
http://www.appleinsider.com/articles/09/04/22/apple_happy_with_att_indicates_no_plans_for_cdma_iphone.html
- McLure, B. (2009). *Dial up choice telecom stocks*. Retrieved June 28, 2009, from Investopedia: <http://www.investopedia.com/articles/fundamental-analysis/09/amazing-telecom-stocks.asp?viewed=1>
- Meckbach, G. (2009, June 19). *Canadian Telecom Summit: Foreign Ownership Debated*. Retrieved July 12, 2009, from Computerworld:
<http://news.idg.no/cw/art.cfm?id=F95F3CC1-1A64-6A71-CE622F4BE864CA96>

Nowak, Peter (2008, November 4). Goodbye to system access fees? Retrieved July 12, 2009, from *CBCNews.ca*:

<http://www.cbc.ca/technology/story/2008/11/03/tech-cellphones.html>

Nowak, Peter (2008, September 9). Rogers, Telus, Bell: The most profitable cell phones around. Retrieved July 20, 2009 from *CBCNews.ca*:

<http://www.cbc.ca/technology/story/2008/09/04/tech-profit.html>

Nowak, Peter (2008, March 10). What if Telus had bought Fido? Retrieved July 18, 2009, from *CBCNews.ca*: <http://www.cbc.money/story/2008/03/07/tech-telus-fido.html>.

Ottawa opens up wireless industry to more competition. (2007, November 28). Retrieved 6, 2009, from *CBCNews.ca*:

<http://www.cbc.ca/money/story/2007/11/28/auction.html>

Rogers Communications Inc. (2009). *Rogers.com*. Retrieved July 12, 2009 from <http://www.rogers.com>

Rogers Communications Inc. (2009). *Rogers Network Advantages*. Retrieved July 18, 2009, from Rogers.com: www.rogers.com/fastest

Rogers Communications Inc. (2005). *2005 Annual Report*. Retrieved July 11, 2009, from Rogers.com: [htt://phx.corporate-ir.net/pheonix.ztml?c=80028&p=irol-reportsAnnual](http://phx.corporate-ir.net/pheonix.ztml?c=80028&p=irol-reportsAnnual)

Rogers Communications Inc. (2006). *2006 Annual Report*. Retrieved July 11, 2009, from Rogers.com: [htt://phx.corporate-ir.net/pheonix.ztml?c=80028&p=irol-reportsAnnual](http://phx.corporate-ir.net/pheonix.ztml?c=80028&p=irol-reportsAnnual)

Rogers Communications Inc. (2007). *2007 Annual Report*. Retrieved July 11, 2009, from Rogers.com: <http://phx.corporate-ir.net/pheonix.ztml?c=80028&p=irol-reportsAnnual>

Rogers Communications Inc. (2008). *2008 Annual Report*. Retrieved July 11, 2009, from Rogers.com : <http://phx.corporate-ir.net/pheonix.zhtml?c=80028&p=irol-reportsAnnual>

Rumor du jour: BCE, Telus to merge network upgrades. (2008, August 29). TelecomWeb NewsBreak.

Shaw, G. (2009, April 10). Canada wireless usage lags other G8 nations. Retrieved June 13, 2009, from *Financial Post*: <http://financialpost.com/story.html?id=1484974>

Solomon, H. (2008, December 12). Videotron impatient at pace of talks. *NetworkWorld Canada*, 24 (23).

Sorensen, C. (2009, June 26). Bell, Telus, buzz about iPhone upgrading. Retrieved July 18, 2009, from *TheStar.com*: <http://www.thestar.com/Business/article/656939>

Statistics Canada. (2009). *Canada at a Glance*. Retrieved July 15, 2009, from Statistics Canada: <http://www.statcan.gc.ca>

Telecommunications Policy Review Panel. (2006, March 22). *Final Report 2006*. Retrieved June 15, 2009, from Telecommunications Policy Review Panel: <http://www.telecomreview.ca/eic.site/tprp-gecrt.n>

Telus Corporation. (2005). *2005 Financial Review*. Retrieved June 11, 2009, from Telus: <http://about.telus.com/en/financial/reportsArchive.html>

Telus Corporation. (2006). *2006 Financial Review*. Retrieved July 11, 2009, from <http://about.telus.com/investors/en/financial/reportsArchive.html>

Telus Corporation. (2007). *2007 Financial Review*. Retrieved July 11, 2009, from Telus:

<http://about.telus.com/investors/en/financialreportsArchive.html>

Telus Corporation. (2008). *2008 Financial Review*. Retrieved July 11, 2009, from Telus:

<http://about.telus.com/investors/en/financial/reportsArchive.html>

Telus Corporation. (2009). *Telus.com*. Retrieved July 12, 2009 from

<http://www.telus.com>

Warren, M. (2008, November 24). Telus. *Marketing Magazine*, 113 (22).

Which technology is better: GSM or CDMA? (2008, March 1). *Mobile Choice*.