NETWORK OPERATIONS SUPPORT SYSTEMS AS A COMPETITIVE ADVANTAGE

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ABSTRACT

The overall purpose of this paper is to perform an analysis of TELUS and to examine if Network Operation Support Systems (OSS) can provide TELUS with a sustainable competitive advantage.

The paper begins with the first three chapter exploring overviews of the components of the Canadian Telecommunications services industry, TELUS and its products, and the markets and revenues. The next chapter is an industry analysis of the industry landscape and its players. Michael Porter's Five Forces model is used to assess the industry. An internal analysis of TELUS follows in which the paper takes a closer look at the firm. It examines TELUS' strategy, structure, culture, value chain, technological changes, core competencies, competitive advantage and financial health. The final two chapters discuss key issues of the firm and possible recommendations to address these issues.

DEDICATION

I dedicate this to my caring, loving wife Wonkye Nam. Your support and endurance were paramount to the completion of this endeavour. Thank you for being my partner every step of the way. Sarang-hey Chagi-ya.

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GLOSSARY

ADSL   Asymmetric Digital Subscribers Line. A medium use for data transmission over regular phone lines. It is asymmetric because it provides much higher speeds downloading than uploading.

Cellular   Cellular is wireless telephone system that divides geographic areas into small cells. Each cell area has several transmitters and receivers that communicate with mobile telephones within its area.

CLEC   Competitive Local Exchange Carrier. A CLEC is any local phone company which is not the traditional ILEC.

DSL   Digital Subscriber Line is the medium use for data transfer over regular phone lines.

ILEC   Incumbent Local Exchange Carrier. The traditional phone company.

IP   Internet Protocol is a network standard used for communications from one network device to another.

ISP   Internet Service Provider. A company that provides internet related services such as internet access, email and web hosting.

LAN   Local Area Network is a computer network limited to a small area like an office.

LMCS   Local Multipoint Communication Services. A broadband wireless system used for voice and interactive data.

PCS   Personal Communications Services. Uses a different radio frequency than cellular phones and usually all digital.

PSTN   Public Switched Telephone Network. The traditional telephone network.

VPN   Virtual Private Network is a network that has its network traffic through the Internet encrypted so the entire network is "virtually" private.

WAN   Wide Area Network. A WAN is not limited to one location and can be composed of smaller LANs that are interconnected. Many WANs span long distances using telephone lines, fibre-optic cables, or satellite links.

WSP   Wireless Service Provider. Any company that provides wireless service.

1 OVERVIEW OF THE CANADIAN TELECOMMUNICATIONS SERVICES INDUSTRY

1.1 Components of the Canadian Telecommunications Services Industry

TELUS provides telecommunications services in Canada. It must fend off competition and compete for new revenues. This paper is a strategic analysis of TELUS; however before the analysis can be made there are several components of the Canadian telecommunication service Industry that warrant discussion. The following will provide an overview of the Canadian Radio-television and Telecommunications Commission (CRTC) as well as carriers and providers.

1.2 The CRTC: Regulators

The Canadian Radio-television and Telecommunications Commission (CRTC) was established in 1968 and was empowered by the Telecommunication Act[1] of 1993 to regulate the rates, terms and conditions under which telecommunications services are provided. There were concerns that the monopoly of telephone companies would not act in the public interest. The CRTC ensures that Canadians have access to reliable telephone and other telecommunications services at affordable prices. They regulate services that include residential basic local services, business single and multi-line local services, local options and features, pay telephones, digital network access, local channels, and competitor services. Regulations forced the Incumbent Local Exchange Carriers (ILEC) to provide telecommunication services to remote areas that were more costly to serve. In turn, the ILECs were allowed to subsidize their cost by charging higher rates for metropolitan areas which were significantly less expensive to serve.

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[1] The Telecommunications Act is under the Statutes of Canada Chapter 38 and it outlines the terms and conditions required to be a telecommunications carrier.

1

In 1973, the CRTC began to introduce competition, but the rate of deregulation did not increase until the 1990s. Some of the major CRTC decisions that have changed the telecommunications industry are listed in Table 1.2.1.

Table 1.2.1 Major CRTC Decisions (1992-2005)

Year	Telecom Decision	Descriptions
1992	CRTC 92-12	Deregulated public long distance voice services
1997	CRTC 97-19	Refrained from regulating toll services and toll free services (i.e. 800/888 services)
1997	CRTC 97-8	Deregulated local services
1997	CRTC 97-9	Established price cap regulation
1998	CRTC 98-22	Unbundled components of local services
1998	CRTC 98-8	Deregulated local pay phone market
1999	CRTC 99-14	Decided not to regulate the Internet
2002	CRTC 2002-34	Established framework for second price cap period
2005	CRTC 2005-21	Ruled that VoIP service providers must provide 911 service

Source : CRTC website; http://www.crtc.gc.ca/eng/dno.htm#Decisions

One role of the CRTC is to ensure that the ILECs are compliant with the relevant regulations. Consumers, Competitive Local Exchange Carriers (CLEC) and other interested parties could bring forth complaints and requests to the CRTC to enforce compliancy with existing regulations. Parties could also lobby the CRTC for decisions on new telecommunications technology. For example, near the end of 2004, many communications providers had started to sell Voice over Internet Protocol (VoIP) services to consumers. [2] The VoIP service would be a replacement for consumer local access and long distance (LD) services. To protect consumer interest, the CRTC made a decision in April 2005 that required local VoIP service providers to offer basic 911 services, comparable to ILECs. [3] One month later, the CRTC ruled that it would regulate the ILEC rates for the VoIP market, much to the dissatisfaction of the incumbent carriers. The CRTC has a significant influence on the Canadian telecommunications industry; therefore it must constantly balance between ensuring that consumers receive affordable, reliable

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[2] VoIP is a technology that permits transmission of voice traffic over an IP-based network.
[3] The Telecom Decision, CRTC 2005-21, states that VoIP providers must provide basic 911 services.

services and providing incumbents with incentives, in the form of competition, to increase efficiencies and innovations.

1.3   Incumbent Local Exchange Carrier (ILEC)

ILECs were regional telecommunications companies that provided telecommunications services on a monopoly basis prior to the CRTC introduction of competition in 1997. ILECs provide local, long distance (LD), data/IP, and wireless services and are regulated by the CRTC. Consolidation of the Canadian telecom industry has resulted in four large ILECs: Bell Canada Enterprises (BCE), TELUS, Manitoba Telecommunications Services Allstream (MTS Allstream), and SaskTel. Aliant is included within BCE. By region, TELUS is the ILEC in British Columbia, Alberta and Quebec; SaskTel is in Saskatchewan; MTS Allstream is in Manitoba; and BCE is in Ontario, Quebec, and the Atlantic provinces.

1.4   Competitive Local Exchange Carrier (CLEC)

The CRTC website definition of a CLEC is "a company that has registered with the CRTC to provide local exchange services in competition to the incumbent telephone companies."[4] In 1997 the CRTC issued Telecom Decision CRTC 97-8, thus creating local competition. To provide local services, a CLEC has the choice of either leasing existing network from an ILEC or building its own. Most CLECs began as resellers, leasing existing networks because it is more cost effective than expending capital to build infrastructure. As they become profitable, CLECs can decide to build their own network.

Due to fierce competition, declining revenue and high capital costs, there are very few successful CLECs remaining on the telecom landscape. The ILECs consolidated or acquired

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[4] The CRTC website address is <http://strategis.ic.gc.ca/epic/internet/insmt-gst.nsf/en/sf05453e.html>. Retrieved March 29, 2005.

CLECs and were competing as CLECs in one another's traditional territory. The largest, stand-alone, non-ILEC affiliated CLEC is Call-Net.[5]

1.5 Interexchange Carrier (IXC)

The CRTC deregulated the long distance market in 1992 with the CRTC 92-12 decision. Since then, hundreds of competitors aggressively entered the market. Their cost-based strategy caused a downward trend in long distance pricing. This downward trend did not reverse and long distance has now become a commodity.

1.6 Wireless Service Provider (WSP)[6]

WSPs are companies that provide wireless telecommunications services to their customers. The services include Cellular,[7] Personal Communications Services (PCS),[8] Local Multipoint Communication Services (LMCS),[9] public radio dispatches (ESMR),[10] and satellite services.

1.7 Data/IP Service Provider

Data/IP Service Providers provide services such as data transport services, network services, internet services, and web hosting services.

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[5] Call-Net was formerly Sprint Canada.
[6] See glossary under WSP
[7] See glossary under cellular
[8] See glossary under PCS
[9] See glossary under LMCS
[10] See glossary under ESMR

2 OVERVIEW OF TELUS™ AND ITS PRODUCTS

2.1 TELUS™

TELUS is Canada's second largest telecommunication company and the largest in Western Canada. It was formed in 1998 through the merger between two ILECs: BCTELECOM (the British Columbian ILEC) and TELUS (the Albertan ILEC). The merged company maintained the TELUS name. In 2000, TELUS acquired QuebecTel, an eastern Quebec ILEC, and rebranded it to TELUS Quebec. TELUS is an ILEC in Western Canada and Eastern Quebec. It is attempting to expand its business by being a CLEC in Eastern Canada-territories traditionally held by the ILEC Bell Canada Enterprise (BCE).

TELUS employs 25,000 employees across Canada. Approximately two thirds work in the ILEC and the remaining third in the CLEC. The workforce consists of 13,000 union members and 11,000 management professionals. The union is represented by the Telecommunications Workers Union (TWU) whose contract with TELUS expired in 2000. TELUS and the TWU have been in contract negotiations for the last four years (TELUS, 2005).

TELUS has a market capitalization of $15 billion and achieved total revenue of $7.6 billion in 2004 by offering local, long distance, data, Internet Protocol (IP),[11] and wireless products and services (TELUS, 2005). TELUS is divided into two large business segments: TELUS Communications Inc. (TCI) and TELUS Mobility. TCI consists of local, long distance, data, and IP services. These are grouped under the "Wireline" banner while TELUS Mobility provides wireless products and services.

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[11] See glossary under IP

2.2 TELUS Communications Inc. (TCI)

TCI provides complete consumer and business Wireline telecommunications products and services. It has a total workforce of 18,800 employees, consisting of union and management professionals. TCI is the third largest Wireline Internet service provider (ISP)[12] in Canada with almost one million Internet subscribers. It also supplies 4.8 million network access lines.

In 2004, TCI achieved revenues of $4.8 billion. Approximately 25% of the revenues were regulated by the CRTC. The CRTC regulates TCI for its ILEC services such as rates of residential services, business services, competitor services, and public telephone (payphone) services, but it faces no restrictions as a CLEC. Its main revenue stream was from local services, followed by data/IP, and long distance. Overall, Wireline revenues have decreased due to declines in local and long distance revenues.

2.3 Focus of the Paper

TCI provides telecommunications services in a declining Wireline telecommunication industry. It must fend off competition as an ILEC and compete for new revenues as a CLEC. It must explore opportunities with new technology to offer better value-added to its customers and it must improve internal efficiencies. This paper is a strategic analysis of TELUS and explores whether if Network Operation Support Systems (OSS) can provide TELUS with a sustainable competitive advantage.

2.4 Local Access (Local)

Local access service is generally known as local telephone service. The correct definition is the service that allows customers to connect to the public switched telephone network

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[12] See glossary under ISP

(PSTN),[13] to call within their local calling areas and to access long distance networks, cellular networks and the Internet. Local services include enhanced calling features, such as call display, call waiting, call forwarding, voice mail, emergency services and directory assistance. Local services also encompass Centrex for business customers, public pay telephones, and competitive long distance carrier access.

2.5 Long Distance (LD)

Long distance service enables customers to call nationally or internationally anywhere in the world. This service is so competitive and commoditized that it forced TCI to look to technology in an attempt to reduce the cost of this service or to introduce new value-added services to increase revenue. As a result of the TELUS Next Generation Network (NGN) initiative of transitioning off a circuit-based switching network towards an IP-based network designed to carry voice, data and video traffic, TELUS was able to move some long distance traffic on to its NGN. The NGN initiative allowed TELUS to offer the IP-One Innovation™ service to its business customers in the fall of 2003. One of the features of the IP-One service is IP telephony, similar to VoIP, which returned modest long distance savings.

2.6 Data and Internet Protocol (Data/IP)

Data/IP services can be segmented into two categories: traditional and enhanced. Traditional data/IP services include private line and switched services. Enhanced data/IP services consist of local area network (LAN)[14] management, wide area network (WAN)[15] management, web hosting, virtual private networks (VPN)[16], and internet access.

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[13] See glossary under PSTN
[14] See glossary under LAN
[15] See glossary under WAN
[16] See glossary under VPN

Internet access consists of dial-up and high-speed Internet. High-speed Internet services are predominately offered through DSL (digital subscriber line)[17] type services. High-speed services include features such as Firewall, Anti-Virus, Parental Control, Anti-Spyware, and Spam Control.

One example of an enhanced data/IP-based service is TELUS IP-One Innovation™ service. IP-One provides business customers with IP-based applications that can integrate voicemail, e-mail, data, and video through a Web portal. It also enables customers to transition from legacy voice infrastructure to Internet protocol telephony such as VoIP. TCI was able to obtain several large contracts with customers such as TD Bank and Co-operators Insurance as a direct result of this offering.

One example of consumer data/IP is the TELUS Future Friendly Home™, which is a new line of products and services that simplifies the process to enable a digital home through the use of high-speed Internet. Two initial service offerings included TELUS Home Networking and TELUS HomeSitter®. Home Networking is an integrated solution that connects wired and wireless components such as customer computers, shared printers, scanners, files, and the internet. Customers can now access the internet or any of the devices from anywhere inside their home. HomeSitter is a wireless multi-camera home monitoring service that alerts customers of activities within their homes through cellular phone, pager or e-mail. TCI is evaluating digital entertainment such as video on demand or digital television (TV) as possible future data/IP services.

2.7 Wireless

Wireless services are offered through TELUS Mobility's PCS and Mike digital wireless networks. They include wireless voice, internet and data services. TELUS Mobility established

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[17] See glossary under DSL

roaming agreements with Verizon and Nextel, in order to provide customers with coverage across North America.

2.8 Bundles

TCI has been successful with bundled offering of services and products. Bundling is the offering of several services or products at a discount when a second product or service is purchased. Although there are currently no bundles that include TELUS Mobility's product and services, TCI still has one of the industry's most comprehensive product bundling including different combinations of local, long distance, internet, data, and enhanced services. The bundles simplify customer purchase decisions.

3 OVERVIEW OF THE MARKETS AND REVENUES

3.1 Canadian Telecommunications Market

According to a November 2004 CRTC report on the status of the Canadian

telecommunications market (CRTC, 2004); the total services revenues in 2003 were $31.8 billion.

Table 3.1.1 shows the total revenues of the Canadian telecommunications services market from

1999 to 2003.

Table 3.1.1 Total Telecommunications Services Revenues (1999-2003)

Year	Total Revenues ($ billion)	Year-over-Year Growth
1999	26.0	-
2000	28.9	11.2%
2001	31.4	8.7%
2002	31.4	0.0%
2003	31.8	1.3%

Source: CRTC website;
http://www.crtc.gc.ca/eng/publications/reports/PolicyMonitoring/2004/gic2004.htm

The total telecommunications services market was estimated to grow to $32.6 billion by

2004, consisting of 27% Wireless revenues and 73% Wireline revenues. In Figure 3.1.1 the

Wireline revenues are further segmented into local, long distance, data/IP, resellers, and others.

The overall telecommunications market revenues are dominated by Wireline revenues.

The total Wireline segment, led by long distance, has been slowly declining as indicated by Table

3.1.2. The only segment that exhibits growth is the Wireless segment which grew 18% from 2003

to 2004.

Figure 3.1.1 Canada's Telecommunications Services Market by Segment

Telecommunications Services Market by Segment, 2004 (C$32.6 Billion)

Other
9.7%

Resellers
2.4%

Wireless
26.3%

Data/IP
21.1%

Long
Distance
13.7%

Local
26.7%

| ⊞Wireless | ⊠Local | ⊞ Long Distance |
| 🔲 Data/IP | ☐ Other | ⊟ Resellers |
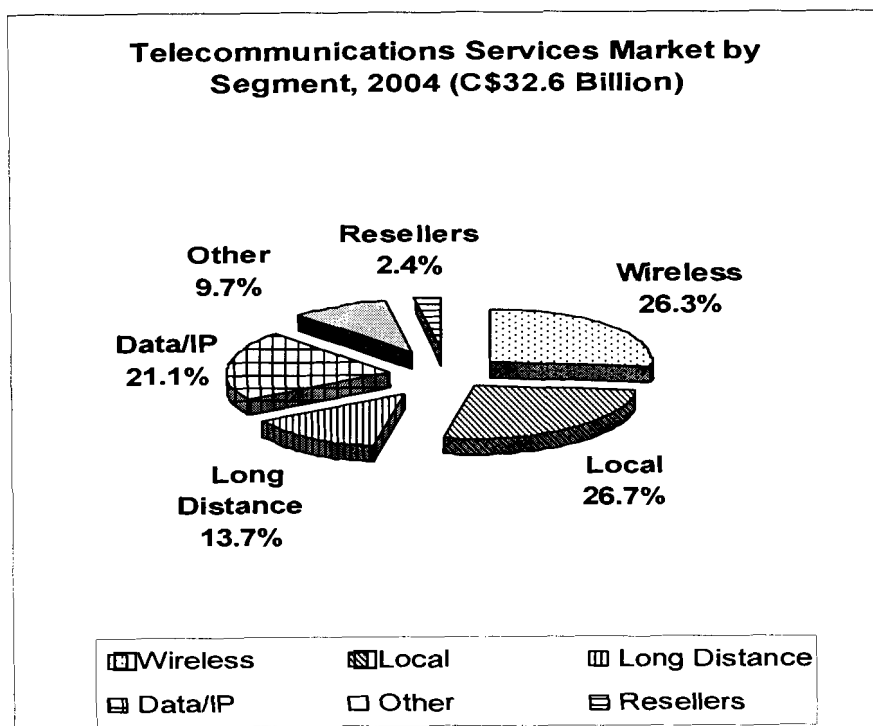
Source: From Canadian Telecoms. Financials

Table 3.1.2 Growth of Canada's Telecom Services Market by Segment

Segment	2003 ($ billion)	2004 ($ billion)	Year-over-Year Growth
Local	8.4	8.4	0.0%
Long distance	4.6	4.2	-8.7%
Data/IP	6.0	5.9	-1.2%
Total Wireline	**19.0**	**18.6**	**-2.5%**
Total Wireless	**7.7**	**9.1**	**18.0%**
Total	**26.8**	**27.7**	**3.4%**

Source: From Canadian Telecoms. Financials

3.2 Revenue Streams

Figure 3.2.1 shows that the total Canadian telecommunications market is dominated by a handful of players. BCE and TELUS combined for almost three quarters of the market.

Figure 3.2.1 Telecommunications Market Segmented by Companies (2004)

Market Segmented by Companies (2004)

Legend:
- ■ TELUS
- ▨ BCE (incl. Aliant)
- ▥ Roger Comm.
- ⊞ MTS Allstream
- ▨ Others (each < 5%)

Slices: 12%, 6%, 10%, 23%, 49%
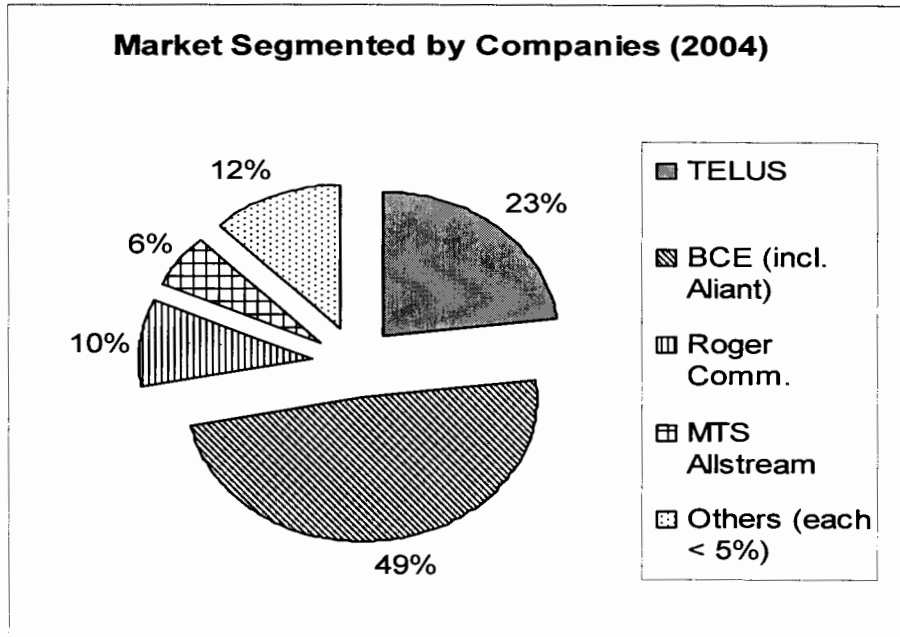
Source: From Canadian Telecoms. Financials

TELUS has 23% of the overall market which is broken down to the revenue streams shown in Figure 3.2.2. TELUS revenue streams were similar to that of the overall telecommunication industry, except that the weighting for Wireless revenues is approximately 41% greater than the industry average.

Figure 3.2.2 TELUS Revenues by Segments (2004)

TELUS 2004 Revenues

Other 4%

Data 18%

Long Dist. 12%

Local 28%

Wireless 38%

- ▣ Wireless
- ▨ Local
- ▥ Long Dist.
- ▢ Data
- ▨ Other
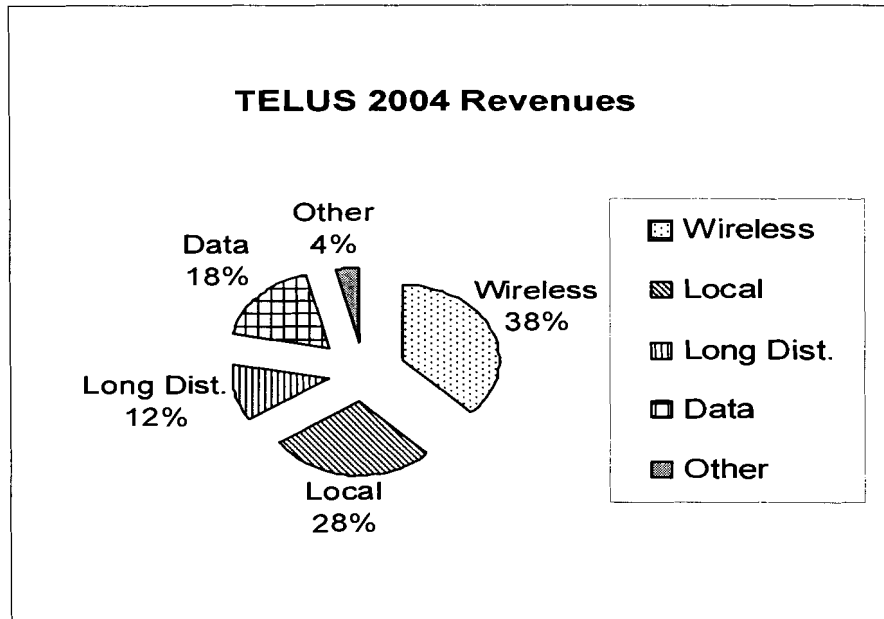
Source: TELUS' 2004 Annual Report

Table 3.2.1 shows TCI Revenues by segments and each segment as a percentage of Industry. TCI controls 1/5 of the LD, 1/5 of the Data/IP markets, and approximately ¼ of the local market. It also controls approximately 1/3 of the wireless market.

Table 3.2.1 TCI Revenues by Segments and Percentage of Industry Segments

Segment	TCI ($ million)		Year over Year	% of Industry
	2003	2004	% change	Segment
Local	2,161	2,139	-1.0%	23.9%
Long Distance	961	915	-4.8%	20.0%
Data/IP	1,368	1,393	1.8%	19.7%

Source: TELUS' 2003 and 2004 Annual Report

Revenues from both local and long distance have steadily declined for several years due to heavy competition and technological substitution. The decline may intensify because cable-TV competitors have recently entered the local and LD markets by offering consumer VoIP services.

Revenue from data/IP increased slightly, due to growth in Internet and enhanced services. Their revenues were offset by a reduction in dial-up Internet and by competition. Overall, TCI's combined revenues remain flat while the industry declined by an average of 2%.

Table 3.2.2 Growth of TELUS vs. Market (2003-2004)

	Local	LD	Data/IP	Internet Subscribers	Wireless
Market	0.0%	-8.7%	-1.2%	21.0%	18.0%
TELUS	-0.7%	-4.2%	3.6%	22.8%	19.2%

Source: Internal sources at TELUS

4 INDUSTRY ANALYSIS

4.1 Telecommunications Companies

In recent years the telecommunications industry has been consolidating because ILECs are purchasing CLECs, resulting in seven players that account for 97.5%[18] of the market for local, LD, and Data/IP services. The landscape currently consists of four ILECs and three CLECs. The ILECs are Bell Canada Enterprises Incorporated, TELUS Communications Incorporated, MTS Allstream, and Saskatchewan Telecommunications. The three CLECs are Call-Net Enterprises Incorporated, Rogers Communications, and Shaw Communications Incorporated. There are also hundreds of resellers. However, when combined, they form less than 2.5% of the industry; thus they are omitted.

The following briefly discusses each of the seven telecommunications companies with an in depth analysis of TELUS later in the paper. The companies are listed by telecommunications market size.

4.1.1 Bell Canada Enterprises Incorporated (BCE)

Bell Canada Enterprises Inc. (BCE) is the largest telecommunications company in Canada. It competes as a CLEC in Western Canada and as an ILEC in Eastern Canada and the Maritime Provinces. BCE provides full telecommunications services and Direct-to-home (DTH) satellite services to residential and business customers. In 2004, it generated revenues of $15.9 billion, translating to a market share of 48.8% (BCE, 2005).

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[18] Derived from the 2004 Annual Reports of the seven players; BCE, TELUS, MTS, SaskTel, Call-Net, Rogers and Shaw.

BCE consists of four business units: Bell Globemedia Inc., Bell Emergis Inc., Bell Ventures, and Bell Canada. Bell Globemedia provides broadcasting and media to Canadian consumers. Its portfolio includes the CTV Television Network, specialty channels, and *The Globe and Mail*™ newspaper. Bell Emergis provides eBusiness solutions to the financial and health services industry. Bell Ventures contains BCE's investments including the wholly-owned Telesat Canada, a Canadian domestic satellite communications system. These three units combined, contribute to approximately 10% of BCE total revenue.

Bell Canada generates 90% of BCE's revenue. It provides local, LD, Data/IP, and wireless as both ILEC and CLEC. It serves the Maritime Provinces as an ILEC through its ownership of Aliant Inc. It competes as a CLEC in Western Canada through its wholly-owned Bell West Inc. To support its growth in Western Canada, BCE acquired the assets of 360 Networks in 2004. The 360 Networks network infrastructure in Western Canada allows BCE to avoid having to build the infrastructure themselves.

Table 4.1.1 BCE Revenues by Segment (2004)

BCE	2004 Revenues ($ million)	% of Revenue
Local	5,572	35.0%
LD	2,327	14.6%
Data/IP	3,640	22.8%
Wireless	2,818	17.7%
Other	1,580	9.9%
Total	15,937	

Source: BCE's 2004 Annual Report

Table 4.1.1 shows BCE telecommunications revenue distribution by segments. BCE derives 71% of its telecommunications revenue from its Wireline business.

Table 4.1.2 shows the percentage of market captured by BCE and its ranking in the industry. BCE ranks first in market size for all Wireline categories, controlling 50% or more in each category.

Table 4.1.2 Revenues as a Percentage of Market and Its Market Position

	% of Local Mkt	Market Position	% of LD Mkt	Market Position	% of Data/IP Mkt	Market Position	% of Wireless Mkt	Market Position
BCE	62.4%	1	50.8%	1	51.5%	1	32.0%	Tied 1

Source: 2004 Annual Reports of the seven industry players[19]

BCE growth from 2003 to 2004, as shown in Table 4.1.3, is slightly below the market with the exception of Internet subscriber's growth, which is slightly above.

Table 4.1.3 Growth of BCE vs. Market (2003-2004)

	Local	LD	Data/IP	Internet Subscribers	Wireless
Market	0.0%	-8.7%	-1.2%	21.0%	18.0%
BCE	-0.5%	-8.5%	-2.1%	24.0%	14.5%

Source: 2004 Annual Reports of the seven industry players

BCE is able to offer customers an extensive service bundle that includes local, LD, data/IP, wireless and DTH satellite television services.

4.1.2 Rogers Communications Incorporated (Rogers)

Rogers Communications Inc. (Rogers) has 10% of the telecommunications market, giving it a distant third ranking behind BCE and TELUS. Rogers is predominately a wireless carrier and cable television service provider. It generated $3.2 billion in 2004[20] (Rogers, 2005) with approximately half of all revenue coming from wireless businesses. In the fall of 2004,

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[19] Adapted from the 2004 Annual Reports from BCE, TELUS, MTS Allstream, SaskTel, Call-Net, Rogers, and Shaw.
[20] Figures from Rogers' 2004 Annual Reports.

Rogers acquired Microcell and became Canada's largest national wireless communications service provider, serving 5.5 million customers. The acquisition also reduced the number of wireless carriers to three: BCE, TELUS, and Rogers.

Rogers provides cable television services that include digital cable, pay-per-view, video/DVD rental and Internet access. In 2004, Rogers generated $372 million from its data/IP services by providing high speed Internet access for residential and business customers via cable modems. Rogers holds 5.3% of the data/IP market, placing it fifth in industry ranking. Rogers offers its customers various service bundles that consist of wireless, cable television, and data/IP.

4.1.3 MTS Allstream (MTS)

MTS Allstream (MTS) is the fourth largest telecommunications company in Canada with 6.2% of the market. MTS was formerly Manitoba Communications Inc. and functioned predominately as an ILEC for Manitoba. In 2004 it decided to complete as a CLEC. It purchased Allstream Inc.[21] and realigned its out-of-region growth strategy to compete directly with Bell in the Eastern Canadian business market.

MTS serves its Manitoba residential and business customers with local, LD, data/IP, wireless and television services. MTS uses its Allstream division to serve national business customers with services that include connectivity, e-business, infrastructure management and information technology services. In 2004, MTS achieved revenues of $2 billion. Its revenue segments are shown in Table 4.1.4. The MTS Wireline business was valued at $1.7 billion in 2004. This contributes to 86.3% of MTS' revenues and makes it the third largest Wireline services carrier in Canada. Table 4.1.5 shows that MTS' Wireline represents a small portion of each market segments of local, LD, and data/IP.

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[21] Allstream was formerly AT & T Canada.

Table 4.1.4 MTS Revenues by Segment (2004)

MTS	2004 Revenues ($ million)	% of Revenue
Local	545	27.1%
LD	510	25.4%
Data/IP	679	33.8%
Wireless	182	9.1%
Other	92	4.6%
Total	2,008	

Source: MTS' 2004 Annual Report

Table 4.1.5 MTS Revenues as a Percentage of Market and Its Market Position

	% of Local Mkt	Market Position	% of LD Mkt	Market Position	% of Data/IP Mkt	Market Position	% of Wireless Mkt	Market Position
MTS	6.1%	3	11.1%	3	9.6%	3	2.1%	5

Source: 2004 Annual Reports of the seven industry players

In 2004, MTS' Wireline revenues declined from previous years and underperformed the market (see Table 4.1.6). LD and data/IP revenues declined significantly compared to market. The LD revenue decline of $90 million is attributed to lower average revenue per minute (ARPM), a decrease from $0.07 in 2003 to $0.06 in 2004.

Table 4.1.6 Growth of MTS vs. Market (2003-2004)

	Local	LD	Data/IP	Wireless
Market	0.0%	-8.7%	-1.2%	18.0%
MTS	-2.5%	-15.0%	-6.5%	13.0%

Source: 2004 Annual Reports of the seven industry players

4.1.4 Shaw Communications (Shaw)

Shaw is the fifth largest telecommunications company in Canada with 4.6% of the market. It is also largest cable company in Canada with a customer base of one in four

households. Although it is a public company, the Shaw family controls 91.5% of the shares with the Executive Chair JR Shaw owning 76.5% of the company.

Shaw provides broadband, cable television, data/IP and satellite services. It is considered to have one of the most advanced cable networks in North America. It has the largest cable high speed Internet subscriber base in Canada and the highest penetration among major cable companies in North America. Shaw's residential and business subscribers access the Internet via cable modems.

In 2004, its data/IP revenues were $437 million, constituting 6.2% of the data/IP market. Shaw hopes to increase its revenue with its advanced cable network. The network is two-way capable enabling it to offer more new services, such as home security, home gateways, and VoIP. Shaw launched a digital VoIP phone service in 2005. Shaw offers service bundles consisting of cable television and data/IP services.

4.1.5   Saskatchewan Telecommunications (SaskTel)

SaskTel is an ILEC in Saskatchewan and is tied for sixth place as Canada's largest telecommunication services provider. It holds 2.6% of the market by offering local, LD, data/IP, wireless, and television services. SaskTel's revenues are evenly distributed, led by local, LD, and data/IP (see Table 4.1.7).

In the past, the Saskatchewan local market was not considered attractive because there were few concentrated urban areas and Shaw was a major competitor in offering high-speed Internet access. Due to technology advancements, such as VoIP, SaskTel can expect to encounter more competition entering its market. SaskTel also offers VoIP services and television and video on demand (VOD) through its Max Interactive Services.

Table 4.1.7 SaskTel Revenues by Segment (2004)

SaskTel	2004 Revenues ($ million)	% of Revenue
Local	322	37.9%
LD	126	14.8%
Data/IP	159	18.7%
Wireless	194	22.8%
Other	49	5.8%
Total	850	

Source: SaskTel's 2004 Annual Report

4.1.6 Call-Net Enterprises Incorporated (Call-Net)

With 2.6% of the telecommunications market Call-Net Enterprises Inc. (Call-Net) is the other service provider in sixth place. Call-Net offers local, LD, data/IP and wireless services through its wholly-owned subsidiary Sprint Canada Inc. Its wireless segment accounts for less then 1% of its revenues because Call-Net is a reseller and it does not concentrate resources in this segment. Call-Net maintains network facilities in the United States and United Kingdom. Its customers include residential, businesses, governments and other telecommunications carriers.

Table 4.1.8 Call-Net Revenues by Segment (2004)

Call-Net	2004 Revenues ($ million)	% of Revenue
Local	154	18.2%
LD	497	58.5%
Data/IP	191	22.5%
Wireless	7	0.8%
Other	0	-
Total	849	

Source: Call-Net's 2004 Annual Report

Call-Net's 10.9% of the LD market (see Table 4.1.9) accounts for almost 60% of its total revenue (see Table 4.1.8). This is a concern as the overall LD market declined 8.5% from 2003 to 2004. During the same period, Call-Net's decline was even greater than market, with a decline of 11.2% as shown in Table 4.1.10. The LD revenue decline was attributed to lower ARPM by its Consumer LD and Carrier LD customers.

Table 4.1.9 Call-Net Revenues as a Percentage of Market and Its Market Position

	% of Local Mkt	Market Position	% of LD Mkt	Market Position	% of Data/IP Mkt	Market Position	% of Wireless Mkt	Market Position
Call-Net	1.7%	5	10.9%	4	2.7%	6	0.1%	6

Source: 2004 Annual Reports of the seven industry players

Table 4.1.10 Growth of Call-Net vs. Market (2003-2004)

	Local	LD	Data/IP
Market	0.0%	-8.7%	-1.2%
Call-Net	48.3%	-11.2%	0.5%

Source: 2004 Annual Reports of the seven industry players

4.2 Five Forces Analysis

Michael Porter's Five Forces model is used to analyze the Canadian Wireline

Communications industry (see Figure 4.2.1).

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Canadian Wireline Telecommunications Industry

Threat of New Entrants

Very Low threat of entry
- (-) High entry cost
- (-) Low margin as a reseller
- (-) Regulatory limits foreign ownership
- (+) Legislation and government actions
- (-) ILEC's regional dominance
- (-) ILEC has economies of scale
- (-) Branding is needed to compete

Bargaining Power Of Customers

Low bargaining power for customers
- (-) Customers are largely fragmented
- (+) Overall local and LD services are homogenous
- (-) Bundling can be use to differentiate

Rivalry Between Existing Competitors

Moderate intense rivalry between existing competitors
- (+) Mature market
- (+) Decline in local, LD & data revenue
- (-) Growth in internet revenue
- (+) Overall local and LD services are homogenous
- (+) Low switching cost for local, & LD
- (-) High switching cost for data
- (-) Bundling is used to differentiate

Bargaining Power Of Suppliers

Significant bargaining power to suppliers
- (+) Dominated by a few large suppliers
- (+) Small Canadian market relative to the world
- (-) The industry is a key customer group to supplier
- (+) Skilled workforce limited

Threat of Substitute Products/Services

strong threat of substitutes
- (+) Satellite service is expensive
- (+) Wireless service is becoming cost competitive
- (-) VoIP is viable service to the consumers
- (-) Cable providers compete directly in local & LD.

Legend
- (-) Decreasing effect
- (+) Increasing effect

Source: Adapted from Porter 1979

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4.2.1 Threat of New Entrants

High entry cost is one of the largest barriers for new entrants. A new entrant would require high initial investments in order to buy or lease equipment, plants, and facilities. The CRTC recognized this barrier. To promote competition, it mandated that ILECs provide access to competitors at contribution rates and price caps determined by the CRTC. Deregulation was a large factor in creating new entrants to the industry in the past.

Most new entrants enter the market with a reselling strategy, however, leasing from an ILEC and reselling the services usually results in low margins due to high variable costs. An entrant would continue as a reseller until it could build or acquire its own facilities. The infrastructure required substantial capital investment. An entrant without "deep pockets" would need to raise funds, but the investors would be limited to the Canada as the CRTC limits foreign ownership in a telecommunications company.

If the Canadian government and CRTC decided to allow foreign ownership, the Canadian Wireline communication industry landscape could vastly change. The larger global communications providers, such as Verizon, would be enticed to expand into the Canadian market. Government and the CRTC actions could increase the threat of new entrants but they have not provided evidence that they would lift the foreign ownership restrictions.

ILECs have considerable regional dominance in the industry. Their combined 2003 annual revenue represented 84.4% of the total Canadian Wireline communications industry. These ILECs have economies of scale that new entrants find difficult to match. Their size and monetary resources allow them to invest in facilities, promote brand, provide bundles of various services, and deploy network management systems.

Branding is needed to enter any market because customers must know the company exists and that it provides a valuable product or service that should be desired. To reach a broad market substantial marketing costs must be incurred by any new entrant. ILECs have great monetary funds and decades of brand presence and credibility.

High entry costs are a barrier to new entrants, but the CRTC assists in overcoming this with deregulation. Although deregulation was a large factor in creating new entrants to the industry in the past, many of those new entrants failed and have exited from the market. Their demise deters new entrants.

Reasons of their demise can be attributed to several factors including the CRTC's limitation of foreign ownership, the need of branding, and the ILEC's dominance and economies of scale. Overall, these obstacles prevent new entrants from being a threat to the established ILECs.

4.2.2 Bargaining Power of Customers

Wireline customers are largely fragmented and lack consolidated purchasing power. Without consolidation, they cannot speak with one powerful voice; thus are often ignored. The few options for voicing concerns are through the media, advocacy groups, and the CRTC. The CRTC is one of the most important factors determining the power of the customer. Consumers, CLECs, and other interested parties can bring forward complaints to the CRTC to ensure that offenders are compliant with existing regulations.

Large customers such as governments and national enterprises like TD Bank have some limited power because of their impact to a service provider's bottom line. Usually a large customer would require various products and services that the provider would bundle together.

These services become inter-meshed with each other and the complexity grows. This result in an enormous switching cost for the large customer and bargaining power diminishes.

The average customer would not be able to distinguish between the local and LD product sold by various service providers. Local and LD are considered to be homogenous and would have resulted in an increase to consumer bargaining power, if not for the use of bundling by the service providers. Bundling is used to differentiate, but once the customer has purchased the bundle, switching providers is less likely; thus, it decreases customer bargaining power.

4.2.3 Bargaining Power of Suppliers

Equipment providers supply network equipment and telephone switches to the Canadian Wireline communications industry. There are a handful of very large equipment providers who dominant the industry.

A company can adopt the strategy of building its entire network with one vendor or building it with a blend of various vendors. The "one vendor" approach has the advantage of reducing workforce training by standardizing to a specific technology, but it also burdens the company with large switching costs if the company decides to change vendors. The opposite is true with the "blend of vendors" approach. The blend results in reduced switching cost, which allows the company to be in a better position when negotiating with its vendors but the workforce needs to be trained on various platforms.

Although the Canadian Wireline industry is a key customer group to suppliers, the larger suppliers see the Canadian Wireline as small players on the world stage. A large equipment provider such as Cisco Systems does not need to negotiate with its Canadian clients because Canadians contribute only a small fraction of Cisco's revenue. Most of Cisco's business is composed of various telecommunications firms worldwide. Typically, being a key customer to a

supplier reduces supplier power but the relative small size of the Canadian Wireline industry shifts the power mostly to the suppliers.

4.2.4 Rivalry Between Existing Competitors

According to a November 2004 CRTC report (CRTC, Nov 2004), revenues for the local, LD, and data/IP services have been flat or declining since 2001. The growth in the local market from the previous year was flat in 2004 and declined by 3% in 2003. The more competitive LD market saw more drastic declines, with an 8.7% decline in 2004 from the previous year and a 9% decline in 2003.

The data/IP market declined 1.2% in 2004 and 1.4% in 2003 from previous year but within the data/IP market there has been positive revenue growth for internet service providers. The increase in internet revenue was dramatic, achieving double digit growth. The internet service market is the favourable segment of the Canadian Wireline industry because of its growth thus it decrease rivalry. The overall revenues declines from the local, and LD weighed more heavily than the increase in data/IP, therefore the net result is intense rivalry.

The local and LD products and services offered by the Wireline service providers are homogenous. The average customer does not distinguish any substantial differences between the local and LD services sold by various service providers. Homogeneity and retarded revenues typically results in greater rivalry and force companies to achieved growth at the expense of competitors' market share.

Switching cost for local and LD services are very low. The addition of portable local telephone numbers in recent years has lowered the switching cost for local services. Consumers and businesses can easily move from one local provider to another without changing telephone numbers. Long distance services also have very low switching cost. Customers have hundreds of

long distance carriers to choose from and with the advent of voice over IP technology, many companies offer LD calling cards at rates of pennies per minute. The low switching costs for local and LD services intensify rivalry.

On the other hand, switching cost for data/IP customers is higher for several reasons. One is that a customer has invested in hardware that connects to the data provider and the hardware maybe incompatible and may require replacement when connecting to a new provider. Another reason is the network configuration information such as traffic routing, traffic priority, and network security must be re-configured once the customer moves to the new network. One considerable obstacle to switching is the potential disruption to the network, which may interfere with mission critical applications. This higher switching cost in the data/IP market results in reduced rivalry.

Since the combined local and LD market is twice that of the data/IP market, the net effect is an increase in rivalry due to low switching cost.

When competing for customers with services that are mostly homogenous and have low switching costs, bundling is used as a differentiator. Product and service bundling helps a service provider compete because customers have to approach only one provider for all their needs. Customers usually save on overall price and search cost as well as receiving the convenience of dealing with one provider and one bill. Service providers tend to achieve higher overall margins. Bundling also helps to attract new customers and to reduce customer churn; switching between service providers.

4.2.5 Threat of Substitute Products/Services

The three areas that show promise as possible substitutes for services offered by the Wireline providers are satellite, wireless, and voice over IP (VoIP).

There are only a few satellite service-providers in Canada. They are Telesat Canada, Globalstar Canada and Mobile Satellite Ventures. They offer local, LD, data/IP, and internet services to isolated remote areas that are not served by traditional Wireline service providers. Their services are usually offered at a substantial price premium and because of this they do no pose a viable threat as a substitute to the general Wireline customer.

Wireless is currently not cost effective as a replacement for landlines, although for a period of time Microcell Fido's "Fido City" flat-rate plan made some inroads[22]. The Fido City plan offered unlimited inbound and outbound calls for a flat-rate of $40 per month. It was a direct attempt at competing with landline carriers by offering the cellular phone service at a price that was slightly more than traditional telephone service. This landline replacement concept may have run into an obstacle when Rogers purchased Microcell. Rogers decided to drastically change the plan to 750 minutes of local airtime for $45 per month. Canadian consumers are not accustomed to having limits on their local landline telephone calls so the change to City Fido plan will hurt the adoption of wireless as a replacement of landlines.

VoIP is the most promising as a substitute to local and LD. It is viewed as a growing threat to the local and LD revenues of Wireline service providers. VoIP has sporadically existed in various forms and was used by large enterprises, LD providers and computer enthusiasts. It was not introduced as a consumer product until the technology became more mature. In 2004 various ILECs, cable companies, and various VoIP players such as Vonage, Primus, and Yak Communications, started offering VoIP services. Although VoIP is in its adolescent's stage, cable companies such as Rogers and Shaw are seen as the biggest threats to the Wireline providers. Cable companies can now compete directly with the Wireline providers on local, LD, data, and internet services, and they can include TV services into their bundles. With over 72% of

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[22] Fido is a wireless carrier that is now owned by Rogers Communications.

Canadian homes subscribing to cable services, this forms a modest and growing threat to the local and LD revenues of Wireline communications industry.

4.3 Overall Industry Assessment

In the Canadian Wireline telecommunications industry, customers have weak bargaining power due to fragmentation and powerful industry suppliers who regard the Canadian market as a relatively small market. There are very little threats from new entrants.

The CRTC deregulation of local and LD was a huge factor in creating new entrants to the industry in the past, but many of those entrants failed.

The likelihood of a traditional new entrant is very low but there is a small caveat. The Canadian telecommunications environment can change very rapidly if the Canadian government and the CRTC decide to open up the industry to foreign ownership. Large global communications companies with substantial monetary funds such as Verizon[23] may be enticed to enter the Canadian market.

A mature market coupled with product homogeneity and low switching cost creates an environment of moderately intense rivalry. With the additional factors of products and services substitutes, the industry is poised to move to highly intense rivalry.

VoIP enables the entry of the cable companies into the local and LD market. It is technically easier for a cable company to offer voice services than for a Wireline company to offer video services. Previously, the cable companies were only offering data and internet services, but they can now offer competitively priced local and LD services to the market by deploying VoIP technology. The cable companies can even match the Wireline bundle offerings

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[23] Verizon is one of the world's largest telecommunications companies. It is based out of the United States of America.

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and add TV to the mix. As a result of this threat, some Wireline companies such as TELUS and Bell are developing the ability to offer TV services over DSL. It is a direct attempt to reduce the threat of substitution by providing customers with complete product bundles similar to those offered by cable companies. When the Wireline companies offer TV services, their rivalry will intensify further as both Wireline and cable companies will be in direct competition for the same customers.

4.4 Key Success Factors

With intense rivalry on the horizon, the Wireline industry needs to focus on the key success factors (KSF) of branding, bundling and quality products. Branding is necessary to reinforce presence and credibility with customers.

Bundling is needed by Wireline service providers because it affords the providers the ability to offer the best perceived value for a group of services. Customers have the conveniences of receiving their local, LD, Internet, and wireless services from one provider and all consolidated onto one bill. Bundling also provides better margins to the service providers. New products development such as VoIP and TV over DSL are critical in supporting bundling because they allow for a more complete bundle and provide new unique services that are attractive to customers.

Quality service is another important KSF. Any service offering that is perceived to be inferior to what the customers have grown to expect will fail. It is paramount that a service provider offers a quality service to its customers.

5 INTERNAL ANALYSIS OF TELUS

5.1 Firm's Generic Strategy

Overall, TELUS competes by employing a differentiator strategy where it emphasizes the differences between itself and competitors. In a 2002 Canadian Business article, Darren Entwistle,[24] stated that TELUS "tries to differentiate itself in terms of technology, marketing and people." (Verburg, Nov. 21, 2002)

To compete as a differentiator, TELUS needs to be perceived as technologically innovative. One major initiative that fulfills this objective is the building of its IP-based next-generation network. TELUS invested $200 million of capital over two and a half years to complete the NGN. TELUS is using the NGN to consolidate data/IP and voice traffic in order to traverse across one single network. The overall cost of network management and support would be reduced by merging the two separate data/IP and voice networks into a single NGN. The NGN was innovative because it was the first of its kind to be deployed by any ILEC in Canada. It enabled TELUS to begin selling new services such as VoIP[25] to its business customers while its competitors were only contemplating their own version of NGN. TELUS has a temporary first-mover advantage of a two-year window before its main competitor, BCE, can complete its own NGN.

The marketing department of TELUS reinforces the TELUS' image as an innovator by linking it with the Science Centres in the four major cities where TELUS has a strong point of presence: Vancouver, Calgary, Montreal, and Toronto. TELUS exchanged financial contributions

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[24] Darren Entwistle is the CEO of TELUS
[25] VoIP was offered through TELUS IP-One service

with the Science Centres for naming rights to their facilities and for associating TELUS' name on printed material and programs for the Science Centres. A $9 million contribution to the Vancouver Science World resulted in a name change to the TELUSphere and a $7.5 million contribution to the Montreal Science World resulted in their IMAX Theatre being renamed to the TELUS IMAX Theatre.

TELUS also differentiates itself through its marketing and has garnered success in its brand recognition. TELUS' standard marketing campaign employs the use of upbeat music, colourful creatures and plants against a white background and the catch-phrase "The Future is Friendly."™ The simplistic, clean images of the advertisements and the forward orientation of the catch-phrase convey an image that TELUS will guide you to your future with a smile. It hopes to connect with its customers with the feeling that TELUS is a breath of fresh air in the clutter of communication technology.

TELUS has been successful with its marketing and the TELUS brand recognition is high in Western and Eastern Canada. In January 2003, in an ABC Namebank's international survey of 5,000 companies, TELUS won industry kudos for superior awareness of the TELUS brand based on marketing power, image, ownership and trustworthiness.[26] The branding success enables TELUS to reinforce its presence and credibility to its customers.

The statement "to differentiate in terms of people" is referring to the perception of positive service levels received by customers. TELUS employees and systems are significant contributors to the customer's service experience. TELUS' workforce must be skilled in order to provision and manage a service efficiently and effectively. At the same time, TELUS' systems must aid in achieving these objectives.

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[26] ABC Namebank is a firm specializing on corporate naming and global domain issues.

TELUS' workforce consists of 52% union members and 48% management professionals. A majority of union members work on the mass production side. They perform jobs such as office clerks, line installers, coin collectors, equipment repair personnel, and network operators. A majority of management professionals (MP) are highly skilled workers such as engineers, network management personnel, systems architects and sales representatives. They create, manage, and sell TELUS products and services. MP consists of employees from the traditional voice sector and employees from the data/IP sector. The traditional voice employees are older, more inflexible to change, and lack data/IP skills. On the other hand, the data/IP employees tend to be younger and more flexible. To educate its "general population" with data/IP skills, TELUS developed various web-based tutorials and printed information on IP and Networks. If the initiative is successful in increasing the overall IP and network knowledge of its employees, this would enable TELUS to better manage the network, which would enable customers to be served better.

TELUS has various OSS that augment its workforce's ability to deliver a positive customer experience. There are systems that contain customer information, the services they use, and their service level agreements. Other systems are use to provision services and monitor networks.

TELUS attempts to differentiate itself from its competitors with its employment of technological innovations that enable it to create new services, successful marketing that keeps its brand in the forefront of customers' minds, and superior customer service experience is enabled with a skilled workforce and systems that aid its workforce.

5.2 Structure

TELUS has five customer facing units (CFU) and seven supporting units. The five CFUs and their focus are shown in Table 5.2.1. The four supporting units that provide direct support are

Marketing, Technology & Operations (T&O), Business Transformation/IS (BT/IS), and Corporate Affairs. The remaining three units that provide peripheral support are Finance, Corporate Development (Corp.Dev.), and Human Resources (HR).

Table 5.2.1: TELUS Five CFU

Business Unit	Descriptions
Consumer Solutions	Focused on residential services offering products such as CPE, tailored L/D plans, an extensive card portfolio, local access, enhanced Call Management services, dial-up Internet, High Speed Internet, and future Entertainment, and Interactive Data services.
Business Solutions	Focused on large, medium and small-sized businesses as well as public sector organizations that require integrated communication and information services.
Partner Solutions	Focused on national and global service providers requiring IP, data, bandwidth, and voice services into and across Canada.
TELUS Mobility	Focused on consumers, businesses and public sector organizations that require wireless services.
TELUS Quebec	Focused on the Quebec market.

Source: TELUS Internal

The decentralized structure allows each CFU to autonomously tailor strategy and focus on its customer's needs. The CFUs also work together in extended teams when necessary.

The centralized structure of the support groups minimizes duplication of functions and allows synergies across the company. The respective names of the three peripheral support services are Finance, Corp.Dev., and HR. Each name represents the unit's functions. The three units provide shared services for the whole firm and ensure consistency and standards.

The creation of a new service is the result of a combination of effort from the CFUs and support business units that include Marketing, T&O, BT/IS, and Corporate Affairs. Marketing promotes and manages the TELUS brand. It informs potential customers of new and upcoming products and services. T&O provides resources that provision, manage, and repair all of TCI's product offerings. BT/IS provides company wide IS support systems. Corporate Affairs provides legal and regulatory counsel which may be necessary.

5.3 Culture

There are three distinct types of culture that exist within TELUS: the Union, the Traditional, and the Entrepreneur (Wexler, 2005).

The Union and Traditional cultures are not conducive to providing exceptional customer service; therefore TELUS senior management is trying to realign the culture of TELUS to that of the Entrepreneur. The realignment goals are embodied in TELUS' four value statements:

> *We embrace change and initiate opportunity*
> *We have a passion for growth*
> *We believe in spirited teamwork*
> *We have the courage to innovate.*[27]

All new non-union employees must pass a "TELUS Values" exam. The exam evaluates whether an individual possesses traits consistent with TELUS's four values. By hiring only employees who exhibit these traits, the goal is to shift the culture of the non-union portion of the workforce so that they will be nimble and have a higher level of autonomy when making decisions.

TELUS' 25,000 member workforce consists of 13,000 union members and 12,000 management professionals (MP). The union workforce is resistant to change and in full support of the philosophies of the TWU. There is a historic belief of entitlement which makes it difficult to accept and embrace change. Embracing change is one of the TELUS Values. The union workforce is accustomed to a historically monopolist environment and many have been with the company for decades. The norm is to follow rules and procedures. It is difficult to move the average union member's mindset from a monopoly to a competitive market that requires independent action without direction from a manager.

When a union position becomes available, it is filled by a union member with the most seniority not necessarily by a person with the motivation or skills set to do the job. The hiring

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[27] TELUS Values retrieved from internal sources.

manager is placed in a position to dissuade senior union members who lack the motivation from applying for the job. If the person has the motivation, the next obstacle to overcome is often the lack of skills. A cable installer, who has been installing copper wires for 20 years on customer premises, may be successful in applying for network operator position. However, the cable installer may lack basic computer skills, and training is required for these basic skills on how to use a computer and mouse. This is even before training of network concepts and network management tools usage can begin. Training becomes long and expensive.

A common form of job motivation is salary compensation. Compensation for union members is based on seniority rather than on performance. Standard salary increments have been negotiated by the TWU and are applied when a union member has reached the next seniority level. This compensation schema provides a very weak incentive for a union member to adopt an entrepreneurial spirit.

On the other hand, compensation is used as a form of motivation for TELUS' management professional (MP) employees. The MPs are financially compensated with a baseline pay, plus performance bonuses. The performance bonuses can be as high as 25%-30% of baseline pay and are targeted at developing a "high performance" culture. The financial incentives were intended to reward autonomous, competent employees who have good judgment and execute well. Entrepreneurs within TELUS would thrive in this environment, while the Traditional MPs would languish.

Traditional MPs come from the traditional voice world of TELUS. They are similar to the average union workforce in that they existed when TELUS was a monopoly and they, too, have worked for TELUS for several decades. Their job is to maintain a robust voice network using antiquated systems. There are very few new investments because the traditional voice services are a declining segment of the industry. The company is shifting towards wireless and data/IP. Most

Traditional MPs are concerned about their future because of their lack of skills in the new technologies. As a result, the average traditional MP's mindset tends to be more fixated with previously established procedures and standards. They are slower to adapt to changes and are more adverse to risk because of concerns about job security.

Entrepreneurial MPs exist mostly in the wireless and data/IP business unit. This is where the industry is growing and such growth requires updated skills to match the new technologies. A network MP is usually involved with integrating cutting edge technology with a customer's existing network. They must understand the different technologies, the customer's needs, and the network nuances. They are given the "courage to innovate,"[28] which allows them to take managed risks and "think outside of the box" to resolve the customer's issues. Along with the financial rewards, they are motivated by the challenge of the work itself, and they possess the attitude to do whatever is necessary to complete the job.

As expected, the three cultures of Union, Traditional, and Entrepreneur also exist within TCI but their weighting varies greatly between its ILEC and CLEC units. The ILEC unit contains all three cultures, while the CLEC is predominately Entrepreneurs. The difference exists because the CLEC is relatively new in comparison to the ILEC. The CLEC has been in existence for less than six years. Its workforce consists entirely of MPs and no union members. Most of the MPs have been working for TELUS for less than five years and were hired only after they passed the TELUS Values exam. There are very few MPs with Traditional cultures within the CLEC because there is little need for their skills, as TELUS is targeting business customers with data/IP based solutions. Because of its workforce composition, the CLEC embodies much more of the Entrepreneur spirit than that of the ILEC. The CLEC's MP tends to be younger, with a more flexible mindset, and little ties to TELUS' monopolist history. They are more independent, innovative, and aggressive at addressing the customer needs.

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[28] One of TELUS four Values

In 2002, as part of its Operational Efficiency Program (OEP), TELUS downsized its workforce by removing 2000 MPs and reducing its percentage of union workforce from 56% to the 52%. The MPs departed with severance packages, while the union members were enticed to leave through early retirement and generous voluntary separation packages. The downsizing left survivors stressed and demoralized. TELUS received a lot of consumer complaints and negative publicity because of poor quality of service. The downsizing forced groups, such as customer service, to reorganize their work to remove redundancy and to become more efficient. Other affected areas also re-engineered the way they work and operational efficiencies were realized.

The numerous company reorganizations are another aspect that affects the culture of TELUS. There have been six large restructurings in the last two years. In the Information Systems (IS) business unit, TELUS signed a co-sourcing agreement with Accenture[29] in 2004. IS was internally perceived to possess more of a Traditionalist's mindset and it was hoped that Accenture would bring fresh IS resources and methodologies in. The initial results have been mixed. Although the infusion of new Entrepreneur MPs is welcomed, Accenture has also installed project management systems that are governed by rules and processes that must be followed, thus forcing TELUS workers to be less autonomous. The belief is that standardizing the project process will increase the possibility of project success and these successes can be reproduced regularly.

Reorganization has created confusion with roles and responsibilities. Teams have lost understanding of how they contribute to the customer value proposition. Some reorganized teams that received increase workload created by OEP downsizing are compartmentalising, focusing inwards and not trying to do more. Decision making becomes more difficult and less autonomous when there is reliance on managers to decide who should do what. Although reorganizations are necessary to realign resources due to internal and external environmental changes, one should be

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[29] Accenture is an IT outsourcing firm that was formerly Andersen Consulting.

careful in their implementation because a poorly executed reorganization may extinguish the entrepreneur spirit TELUS is trying to create.

TELUS' overall culture is similar to its workforce: a blend of the Entrepreneur mindset and the old monopoly mindset held by its union members and Traditional MPs. As older union members retire and are replaced by younger members, there is a greater possibility that the younger members possess basic computer skills which would reduce training time and expenses. Younger union members may also be less indoctrinated to union philosophies and they may understand the current competitive environment. Traditional MPs who are unable to adopt an entrepreneur spirit will eventually retire or accept severance packages. Those who are willing to change will be retrained with data/IP skills. If both the union members and Traditional MPs can acquire the same competitive mindset of the Entrepreneur MPs, then TELUS will posses a considerable competitive advantage.

5.4 TCI Strategy

Figure 5.4.1 shows a comparison of TCI's Wireline revenues to Mobility's revenue from 1999 to 2005. TCI revenues have been declining while Mobility is TELUS' largest revenue growth segment, growing from 23% in 1999 to an estimated 41% in 2005.

TCI's revenue decline is spearheaded by declines in the LD segment and followed by declines in the residential voice segment. Data/IP has shown small revenue growth and it continues to represent a larger percentage of TCI's revenues year over year. Although each of TCI's segments has outperformed the industry average, TCI continues to look for ways to moderately increase growth in the data/IP area and to minimize losses in LD and residential voice. Within the context of these goals, TCI is expanding its operations and competing as a CLEC in Eastern Canada.

It is estimated that CLECs and other competitors can potentially capture 15%-20% of an

ILEC's revenues. As BCE and other competitors enter into TCI's territories, there is a potential to

capture $670 to $890 million of TCI's Wireline businesses based on TCI's 2004 revenues of

$4.45 billion. A larger opportunity exists when TCI competes as a CLEC in BCE's territories. By

competing as an eastern CLEC, TCI has an opportunity to capture between $1.73 and $2.31

billion of BCE's 2004 revenue. A potential 20% loss in TCI's ILEC revenues would be more

than offset with a potential 20% gain as an Eastern CLEC. This would result in a potential net

increase of 31.9% or $1.42 billion over TCI's 2004 revenues. Competing as a CLEC is one

strategy that TCI employed to offset a general industry decline and an increase in Wireline

competition.

TCI uses the components of TELUS' generic strategy of differentiation as guiding

principles when it competes as an ILEC and a CLEC. TCI needs to provide a better-than-

competitors customer service experience, which would include quality products and discernible

services. To achieve this, TCI must execute on several intertwining strategic goals. As an ILEC,

TCI is bridled by the remnants of its monopolistic past; therefore, its first strategic goal is to re-

educate its workforce with data/IP skills and encourage a high-performance entrepreneur culture.

A more knowledgeable worker would be more flexible and responsive in resolving customer

issues and network outages.

Figure 5.4.1 TELUS Revenue Comparison by Segment

Revenue Comparison (1999 to Estimated 2005)

Legend: ■ Total Rev. ☐ Comm. Rev. ☐ Mobility Rev.
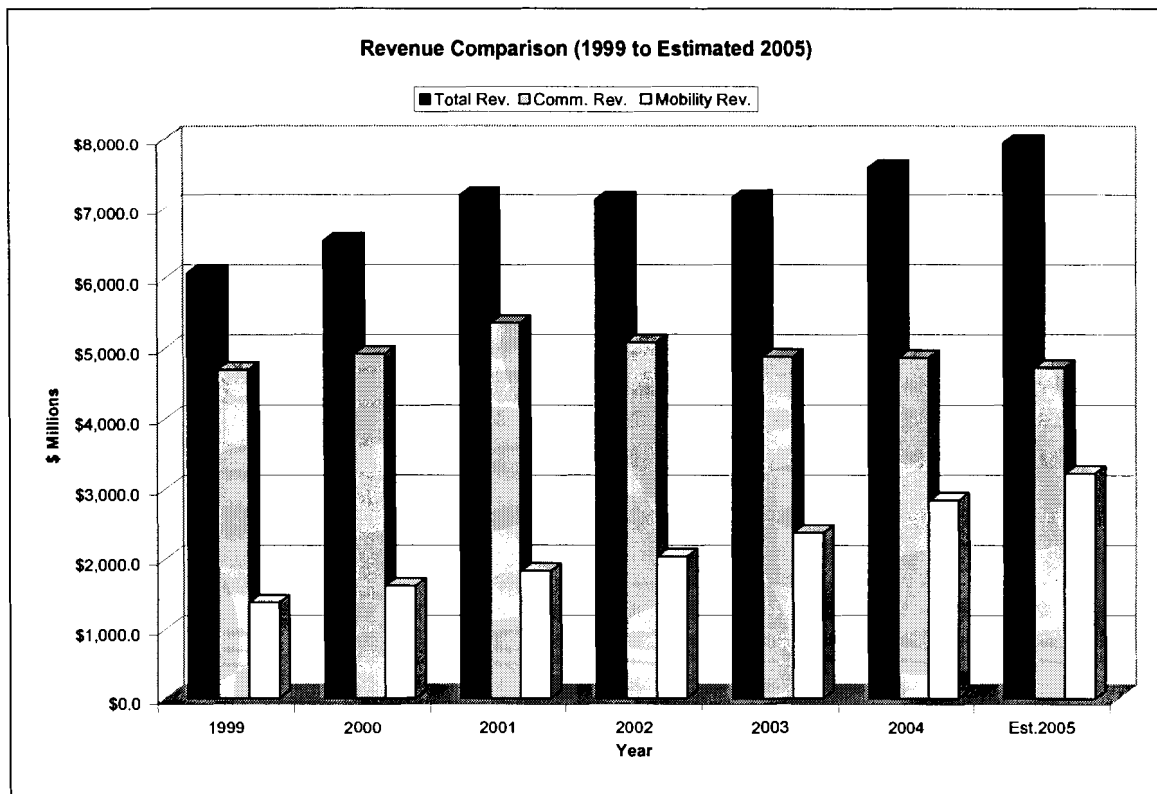
Source: TELUS' Annual Reports from 1999 to2004

Another strategic goal is to invest in improved OSS to assist the workforce's ability to deliver better customer service. One such OSS initiative is the Automated Service Fulfilment (ASF) project which will re-engineer and automate the service fulfilment process from post-order entry through to test and acceptance for voice and data products for all regions. A re-educated workforce and better OSS tools would assist the ILEC in executing its strategic goal towards the Operational Efficiency Program (OEP). The OEP focuses on consolidating customer contact centres, streamlining business processes, reducing the processes that support TCI's products, optimizing the use of networks and other assets. The ILEC was able to reduce operational expenses to partially offset its revenue declines. All these strategic initiatives combined allow TCI to compete by offering a better-than-competitors customer service experience.

When competing as a CLEC, TCI's strategy is the same with an enhancement of the service pricing advantage inherited from its CLEC status. As a CLEC in Eastern Canada, TCI is not constrained by CRTC pricing regulations that apply to BCE, the incumbent ILEC. BCE product pricing is regulated by the CRTC and it cannot price below the pre-established price. TCI, as a CLEC, has no such manacles over its product pricing. It can price products lower than BCE and BCE would not be able to counter. One of the CLEC's strategies is to attract customers by pricing the products 10% to 15% lower than that of BCE. The pricing advantage would be useless if customers do not perceive TCI as a credible communications supplier, or if the provided products were substandard when compared to those of BCE.

TCI has been partially successful in communicating its message to its Eastern customers by leveraging the brand recognition of TELUS Mobility which has a strong brand presence in the East. TCI wants to be seen as an established, seasoned telecommunications company that offers reliable telecommunication services at reasonable prices.

The CLEC workforce is predominately entrepreneurial spirited and most employees have been working for TCI for less than five years. They are not hindered by TCI's monopolistic past. The CLEC is supported by various ILEC departments when they deliver service to the customers. For example, CLEC marketing determines which areas of high customer concentration are targeted and the ILEC's Planning and Engineering (P&E) architects determine how the fibre will be laid in those areas. Due to the CLEC dependence on the ILEC supporting units, the successful implementation of the ILEC strategic initiatives directly affect the CLEC's ability to be successful.

Although CLEC groups such as Marketing and Sales enjoy much autonomy, other CLEC groups like Network Management and Service Development are somewhat restricted by standards and processes set by the ILEC. The CLEC has restrictions when deploying network

equipment. They must obtain approval from the ILEC Planning & Engineering team. When the CLEC wants to offer a wholesale ADSL service in Ontario, it designed the service to use existing Redback Networks equipments that were already deployed in TELUS Quebec. No addition infrastructure build would be needed and the service could be rapidly deployed. The ILEC's P&E mandated that the service must be standardized on the same Nortel Networks equipments that were used in ILEC's wholesale ADSL service. The CLEC was forced to build the service on the Nortel platform incurring additional costs of $1 million in capital and several months of delay.

When entering as a CLEC, another TCI strategy is to target the business market by "cherry picking" the large enterprise customers. Medium and smaller customers are targeted after the larger customers. On average, the margins tend to be higher for the large business market in comparison to the small business market. The CLEC can leverage the skills, knowledge, support systems, and lessons learned from its ILEC background to offer products and services comparable to or above that of BCE's. The high margin of the business market allows the CLEC to price a comparable product below that of BCE. When combined with TELUS' brand credibility, it may be sufficient to entice BCE customers to switch.

Currently, TCI has not displayed much interest in pursuing the smaller margins, higher cost residential market, but this may change when TCI launches its consumer VoIP service in 2006. TCI does not need to provide high speed Internet access because the VoIP appliance would utilize the current internet connection. A customer can obtain an Internet connection from other suppliers and still obtain consumer VoIP from TCI.

5.5 Value Chain and Competitive Advantage

In his 1985 book "Competitive Advantage," Michael Porter introduced the concept of a Value Chain (VC); the value an activity adds to an organizations products or services. He argues that a competitive advantage can result from an organization's ability to perform particular

activities and to manage the linkages between these activities well. An analysis of TELUS' VC can provide insights as to which activities contribute to building values as well as the ones that are hindering it.

5.5.1 Industry Value Chain: Telecommunications

The telecommunications Industry Value Chain (IVC) consists of nine activities: market research, new services development, building and managing networks, building and integrating support systems, distribution, advertising, sales, billing and customer service (see Figure 5.5.1).

Market research involves locating the needs of customers and suggesting new telecommunications products or services that meet those needs. TELUS predominately outsources its market research but would decide independently on which market to pursue, how to pursue it and what products or services to use in its pursuit.

Following the identification of a new service the next activity of the IVC is new services development. In this activity, a firm analyzes a variety of vendor products and services, selects the appropriate ones and integrates it into a new service offering. In TELUS, a few dedicated teams, like the Strategy and Customer Solutions team, will survey and evaluate various vendor products and services and determine which ones may be used to deliver the new service offering. The equipment and services are built, integrated and tested before moving into the next activity of building and managing networks.

Building and managing networks refers to the creation and operationally management of the communication network. A network infrastructure is a necessity since it is the foundation on top of which products and services are built. Sometimes a new service introduction will require new incremental build to the network as well as its own integration into the network. Besides network growth, this activity also includes the repair and support of the network. Once the new

service offering has been in the production network for a period of time, the firm may discover other opportunities or additional features the market would desire and this results in a feedback loop to new service development phase to realize these opportunities.

Figure 5.5.1 Industry Value Chain

An Industry Value Chain
Telecommunications with TELUS Footprint Overlapped on Top

| New Services Development | Building & Managing Networks | Building & Integrating Support Systems | | Advertising | Sales | | Customer Service |

Market Research

Feature additions & new opportunities

Distribution

Billing

Legend

Telecommunications Industry

TELUS, 2005
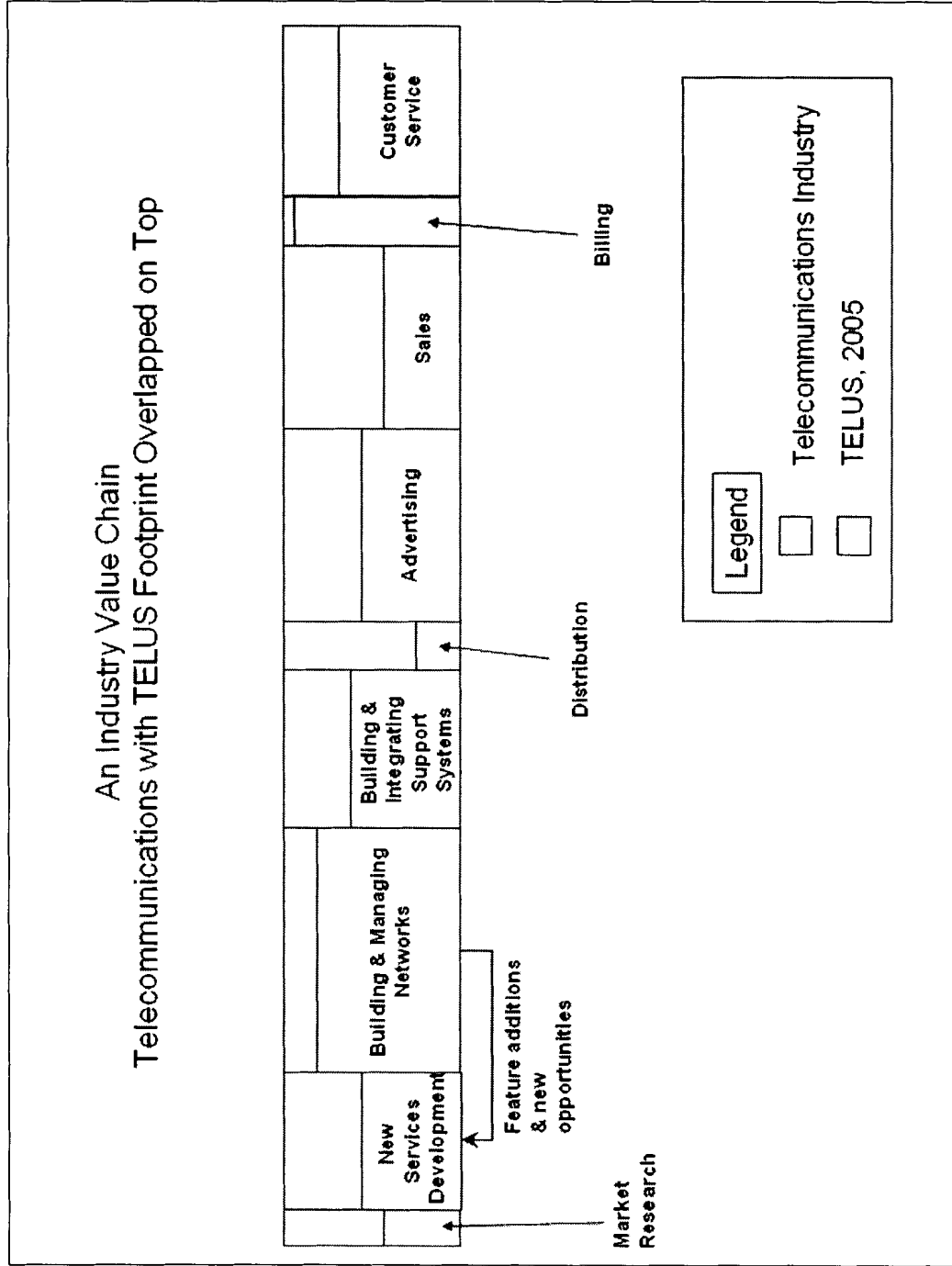
Source: Adapted from Bukszar 2005

In TELUS, the building and managing networks activity is one of the largest components in its VC. Most of the work is done in-house with the few exceptions when the vendor is contracted to assist in integrating or supporting their equipment. After a new service and its systems are deployed, TELUS various customer facing business units may find new possibilities like additional new features that can be derived from the service. These new opportunities are fed back to the new service development phase activity to be explored and possibly implemented.

Almost all of TELUS product and services are built on top of its network infrastructure. Since network availability is crucial in providing value to TELUS' customers, support systems are very important components in meeting this objective. Building and integrating OSS means providing support systems that perform functions such as monitoring, usage tracking and billing. The OSS could have been developed in-house or purchased from vendors and then integrated to current systems by the firm. At TELUS, about 60% of the work is done in-house by management professionals and the rest outsourced to consultants and professional services from equipment and system vendors.

Most of the in-house work involves integrating, quality testing, and deploying the systems into the production network. A well selected and properly deployed support system can enable the network management team to proactively monitor the capacity loading of the network. When network degradation occurs, the system will alert them to take appropriate actions to remedy the degradation and thus preventing a network outage. Downstream these support systems can also assist TELUS' customer care representatives (CCR) to serve the customer better. The systems provide accurate information about customers' usage habits which enables the CCR to suggest appropriately matching bundles for the customer. TELUS extracts more rent and customers are happy with the value of their bundles.

The next activity is distribution, which is the logistic and physical transfer of goods from the firm to its offices, retail stores or customers. TELUS has very few trucks and other vehicles dedicated to its distribution activity, instead couriers and trucking companies are employed for the delivery function. Cellular phones, pagers, ADSL and wireless routers are delivered directly from the manufacturers to the reseller or retailers. Most new services do not require physical distribution but can be implemented by adjusting the customer's service bundle at the central office.

When a new product such as the VoIP service is ready to be launched into a market, advertising is required to inform potential customers of the value of the firm's product and services. TELUS outsources most of its advertising to firms such as DDB Canada. DDB is responsible for TELUS' "Future is Friendly" TV ads, using colorful creatures to showcase their products and services that use Internet technology to simplify customers' lives and connect them to the world.

About one third of TELUS workforce is dedicated to direct sales. The sales team sells to various sized firms, government and sometimes it partners with IT vendors like IBM on various request-for-proposal (RFP) bids. Beside direct sales, TELUS also has many resellers of its product and services. There are over 4000 retail stores and dealerships across Canada selling TELUS cellular phones and ADSL services. Numerous web stores also exist and some such as the TELUS Mobility website offer free delivery to homes or offices.

Billing is the ability to track a sale or service usage and convert the data into a bill or invoice for the customer. TELUS performs all of its billing activities in-house. There are various systems dedicated to various services that capture customer internet, data, and cellular usage and forward the raw statistics to various billing systems. The information is processed then mailed or emailed to customers. There are few consolidated bills, therefore some customers, especially

business customers, can end up with several bills. TELUS occasionally will manually aggregate various types of billing information to simplify the billing for some customers.

The last activity of the IVC is customer service, which includes items such as complaints handling, relationship management, product repairs, and installation and testing. TELUS deploys about a quarter of its workforce to the customer service activity. Most of the interactions with the customers are performed by TELUS members except for instances when the customer engages a reseller directly.

As can be seen in the IVC chart, TELUS is most involved in activities such as new services development, building and managing networks, building and integrating support systems, advertising, sales, and customer service. A value chain analysis at the firm level explores these activities in greater detail.

5.5.2   TCI Value Chain

Table 5.5.1 is TCI's value chain for providing Wireline services to its customers as an ILEC and CLEC. As an ILEC, TCI provides all the activities of the value chain. As a CLEC, TCI also provides all the activities of the value chain for its business customers except for customers in remote areas. It is more cost efficient to outsource the two shaded activities of leasing the local loop from BCE and contracting out the installation of customer equipment.

Table 5.5.1 TCI Value Chain

TCI (ILEC)	Marketing the Service	Lease Local Loop or Build Network	Install Customer Equipment	Provision Service	Build & Integrate Support Systems	Bill Customer	Customer Service to Support Customers
TCI (CLEC)							

Source: Adapted from Bukszar 2005

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Although TCI employs the services of advertising agencies, the Marketing activities and directions are controlled by TCI. It approves budgets, schedules, creative proofs of all print, radio and TV advertisements. The advertising agency performs the creative aspect of the advertisement and sometimes it also coordinates the printing of direct mail pieces and the purchasing of media space in newspaper, radio and TV. However, most often TCI purchases media space in-house and provides the list of customer address to the printer to put onto the direct mail pieces. Overall, TCI performs this activity well; thus, keeping its presence as a credible, quality telecommunications service provider to its customers.

When TCI first ventured into the East as a CLEC, it primary relied on BCE for the local loop and network transport[30] while building its infrastructure and facilities. Currently, TCI deployed a dozen Point of Presence (POP)[31] in Ontario and uses them whenever possible to provide the network transport; thus, reducing its costs of providing services. TCI still approaches BCE for the local loop because it is more cost effective to lease than to physically lay copper wires to its customers.

In the past as a CLEC, TCI used to contract out the physical installing work but it changed when TELUS acquired Williams Communications Canada. Williams was integrated into TCI and forms the core for the TELUS National Systems (TNS) team. The TNS team are all MPs and many possess the small business entrepreneur attitude derived from their Williams past. TNS has a 300 count workforce in the East responsible for all Eastern CO activities and equipment installation. TCI only outsources the equipment installation of remote customers when it is more cost effective. In these instances, TCI must monitor the quality of service provided by the

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[30] Network transport includes network switching, transmission and related services that support information transfer capabilities between originating and terminating access service facilities.
[31] A POP is a physical location where IXC interfaces a subscriber's long distance or lease line services with the ILEC.

installers to ensure that the installers provide excellent service in order to maintain TCI's differentiation strategy.

As an ILEC, these activities are performed in-house by TCI's union workforce. A union technician installs ADSL in a home, or connects fibre optics to a business premise or installs equipment to the communication room of a new condominium. One concern is that most customers prefer to have a service installed in the evening when they are home or when it affects their business the least but union members are not flexible with their work schedule. The union members want overtime pay for any evening or weekend installation instead of taking time off. This adds negative costing pressures to the value chain and hurts TCI's attempts to provide customer service levels that are above that of its competitors but not necessarily perfect.[32]

Provisioning a service could be as simple as a few keystrokes on the network operations support systems (OSS) or it may require manual configuration at a central office. OSS tools are also used in monitoring, supporting and determining quality of a service. Network OSS are various third parties' applications that TCI integrated together to manage its network. TCI has partially outsourced the integration work to the system vendors but most of the activities are done in-house. Some of the activities that OSS performs are network monitoring, auto provisioning, fault handling, quality of service measuring and customer self-serve systems.

OSS automatically monitors a network element and if it fails an alarm is generated to the trouble-ticketing systems. The trouble-ticket (TT) would be retrieved from various systems and databases and populate the TT with the name and contact information of the customer affected, the service level agreement with TCI, and which TCI support team should be contacted to handle the problem. The correct TCI support team is paged with the TT information and when the problem is resolved; the support team would close the TT and contact the customer if necessary.

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[32] TCI needs to provide service level that is above that of its competitors but does not need to provide perfect service level as this may be too costly to do so.

When implemented well, OSS can significantly improve operational effectiveness by driving down the costs of network provisioning and support. OSS can assist TELUS in providing a robust network through proactive monitoring as well as better, efficient service by having all relevant information of the customer and the services they subscribe from TCI readily available during a service call. All contribute to support TCI to provide best-in-class service level agreements (SLA) thus allowing TCI to achieve a competitive advantage. TELUS recognizes the need to improve its OSS and it is investing tens of millions exploring and implementing various OSS that provide better network management and more efficient system and process automation.

After a service is activated TCI will bill the customer for services rendered. The billing activity is performed entirely in-house with various billing systems that are dedicated to specific services. There are few consolidated bills; therefore sometimes it is necessary for TCI to manually consolidate billing information.

In 2003 TCI suffered a wave of negative public backlash with its customer service levels when it downsized its organization. The problem was exacerbated when the TWU, fuelled by a lack of success in negotiating a new contract with TELUS, placed advertisements encouraging TELUS customers to cancel TELUS services and write complaints to the CRTC. Since then TCI has slowly been returning to normal customer service levels.

Another customer service concern is having adequately trained and knowledgeable employees to perform rapid repairs and effective support of the network. Supporting the Wireline network has been minimal but due to successful implementation of NGN and along with it, the introduction of several new IP-based services, more resources are needed to support the data network. These resources need to understand IP protocols, the usage of advanced testing equipment and the operations of OSS. TCI is able to attract skilled candidates to management

professional positions through its compensation package and brand. The same cannot be said for craft positions which are filled based on seniority not skills.

5.6 Technological Change

Technological changes are significantly impacting TCI. A positive example would be TCI's implementation of its IP-based NGN. The NGN allows TCI to converge its data/IP and voice traffic onto one network; thus, reducing TCI network management costs. The NGN also provides the foundation for several new services such as IP telephony and unified messaging. Both services are popular with business customers and have helped TCI win several large contracts from the government and large enterprises such as TD Bank.

TCI has been developing a TV-over-IP (TTV) and a video-on-demand (VOD) service since 2002. In both programs, TCI would be transmitting video through its ADSL service using the telephone copper pair of wires. The TTV service would be offered to TCI ADSL customers initially. The service could then evolve to be streaming video for anyone with a high speed internet connection or cellular phone.

In the fall of 2003, the CRTC granted TELUS the right to broadcast TV and to offer VOD. The TTV service is currently being trialed by TELUS employees in Edmonton, Calgary and Vancouver. TCI expects to offer TTV in 2006 to the public with the VOD services to follow. It is also expected that TCI will offer the TTV service regionally, starting with Edmonton and Calgary first and then followed by Vancouver. Before the TTV rollout can proceed, there are several technical and process issues that TCI needs to address.

TCI understands that TV service by itself is not enough to entice a Shaw or Bell ExpressVu to switch to TTV; therefore, TCI is looking to deploy a high definition (HD) TV as an option for the TTV service. Marketing has determined that it is a critical feature demanded by

potential TTV customers. Some other issues include demand by the customers to have more than one TV and the demand for better quality TV service. These issues surround the limited transmission bandwidth of a traditional copper pair telephone line. The bandwidth available for a customer's ADSL service is inversely proportional to the distance between a customer and TCI's CO: the greater the distance, the lower the bandwidth. On average, the current ADSL consumer is limited to a bandwidth of 1.25 Mbps,[33] but there is the potential to increase to 8 Mbps. A standard TTV service is estimated to require 6 Mbps. TCI is exploring innovative ADSL technology to increase the bandwidth of a copper pair. Two such initiatives are the ADSL 2+ and ADSL Bonding projects. If successfully executed, the ADSL bandwidth per household could increase five-fold for each telephone copper pair.

The deployment of TTV also requires that processes and procedures be established or reorganized. In the past, TCI had two separate union installation teams to provide service installation to customers. One team installs voice services and the other team install data services.

The requirements of TTV facilitate the development of a new team of installers, dubbed the "Home Team." They possess the skills needed to rewire a premise for voice, data, wireless, and video service. They are also responsible for the setup of the TTV Set-tops which were deemed too complicated for the average consumer. It is estimated that each install, on average, would take four hours to complete. As part of its marketing image of "future friendly," the Home Team installers would be driving Austin Minis as their install vehicles.

Quality of service (QoS) for the telephone and TV service was seldom an issue for the average consumer. The telephone dial-tone was "always" available and the sound quality was acceptable. There are concerns over the quality of service of TTV when it is compared to that of the traditional telephone and TV.

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[33] Mbps = megabits per second

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IP was originally designed for data traffic and could endure transmission delays across a network by utilizing a data buffer. However, video and voice are time sensitive. When video is transported across a network using IP, a network delay could result in choppy conversation or pixeling. TCI needs new systems to monitor the QoS so that actions can be taken in response to video service degradation. TCI is currently deploying several systems that will be used to monitor the QoS of video service. When it falls below a pre-determined threshold, a trouble ticket will be created to alert the network assurance team. Since network assurance teams have not needed to urgently respond to QoS issues in the past, they will need to reorganise their work to meet this need.

TTV focuses TCI internal resources on system improvement and process alignment to maintain TTV service availability at 99.999% or better. If successful, TCI's network will also be more robust because the support teams are resolving service degradation issues before they become full outages. Overall, TCI would have improved its product quality and would be able to offer more stringent network SLA with its business customers.

The final example of technology change is VoIP. Traditional cable providers and other competitors such as Vonage and Yak Communications started offering consumer VoIP near the end of 2004. The CRTC decided to regulate VoIP. In response, TELUS, BCE, and SaskTel have launched a legal challenge against it. TCI decided not to offer a consumer VoIP service until 2006. During this time of product absence, it is expected that TCI will lose local and LD market share, but with an offering in 2006, it should be able to recapture some of the lost market and gain a modest portion as a CLEC.

5.7 Core Competencies

One of TCI core competencies is network management. The voice and data/IP networks are managed by a combination of management professionals and union members. The networks

are stable, robust, and serve the customers well; thus, there are very few complaints. In fact, the network is rated at five nine's availability, which means that it is available 99.999% of the time. As a result, customers have become accustomed and expect to hear a dial tone every time they pick up the telephone. The data/IP network has historically been reliable, but the additions of new IP-based services have strained the network, and network degradations are more frequent. TCI recognizes this concern and has started several initiatives to address it. The largest initiative is the Network Reliability Program (NRP) which began in 2003 and continues through 2005.

TCI is at the forefront of many innovations when compared to its competitors. TCI deployed a NGN network several years ahead of BCE. TCI is trialling TTV and is expected to launch the service in 2006. TCI is exploring new ADSL technology that increases bandwidth and QoS tools to manage VoIP and TTV degradation.

Network degradation significantly affects TCI service level agreements (SLA) because it could result in lost revenue due to rebates. A standard SLA states that if TELUS fails to achieve the agreed upon criteria of the SLA, then TELUS will rebate the customer up to 80% of its bill for the month. A successful SLA program can help position TELUS as differentiator and signals to customers TELUS' commitment to its service and the quality of its product offerings.

There are technological advancements in networking that cumulate to the convergence of data/IP, voice, and video traffic. With these advancements, new OSS tools are necessary to manage the network. TCI is implementing OSS tools that monitor the quality of voice traffic over an IP network and alarms on service degradation instead of service failure. TCI is also exploring new OSS monitoring tools with built-in artificial intelligence that quickly perform root cause analysis and identify the cause of network outages. One large OSS initiative is the ASF project which employs several OSS systems to automate service fulfilment process; thus, reducing required resources and provisioning time. Resources could then be redeployed to other areas to

provide better customer service. TCI needs to have OSS as a core competency because it is one of the keys to enabling its workforce in delivering exceptional customer service experience and dramatic efficiency gains.

5.8 Competitive Advantage

TCI has a few competitive advantages: TELUS' revenue composition, the entrenchment of its brand in its ILEC territory, and its ability to compete as a CLEC.

In 2004, TELUS revenue composition was 38% Wireless and 62% Wireline. Its wireless exposure was the largest among ILECs in terms of percentage of overall revenues. The closest were SaskTel at 23% and BCE at 18%. Since wireless is the growth sector of the industry, having a larger exposure would be seen as an advantage. TELUS wireless growth of 19% is also higher than the industry average of 18%. All the wireless positives translate to investor confidence in TELUS' stock; therefore, it is easier for TELUS to raise funds for capital projects.

Its products, services, and brand have been entrenched in the minds of customers within its ILEC territories. Customers see TCI as an established telecommunications company that offers reliable telecommunication services at reasonable prices. For a customer to join a competitor, the competition would need to offer lower prices, comparable quality products, and a better customer service experience. A CLEC, such as BCE, entering TCI's ILEC territories would have a pricing advantage and possibly comparable products but it will need to exceed TCI in customer service. TCI can defend its customer base by offering exceptional customer service, although the same service advantages that TCI enjoys in eastern Canada are enjoyed by BCE in western Canada, that is, a more customer oriented entrepreneurial workforce.

TCI is placed in the opposite position in Eastern Canada where it competes as a CLEC. It has the same competitive advantages and issues that BCE has as a CLEC in the West. TCI can

price its services lower than BCE while BCE would not be able to counter with lower prices. This is a distinct advantage because TCI can match BCE's Wireline service offerings and it also has a comparable reputation of providing a quality product. TCI would need to provide customer service levels above that of BCE. The TCI CLEC workforce consists predominately of management professionals while BCE ILEC is a mixture of Union and management professionals. There is greater possibility that TCI CLEC can be more flexible and aggressive at exceeding customer's service expectations than BCE ILEC. If TCI is successful, then BCE customers would be enticed by TCI's lower prices and better customer service.

5.9 Financial Analysis

5.9.1 Revenues and Productivity

The financial analysis of TELUS will be performed at a corporate level. TELUS revenues have been steadily increasing since 2000 (see Figure 5.9.1).

Figure 5.9.1 Operating Revenues (2000-2004)

Operating Revenues (2000-2004)

|	2000	2001	2002	2003	2004
Operating Revenues	$6.00	$7.08	$7.01	$7.15	$7.58
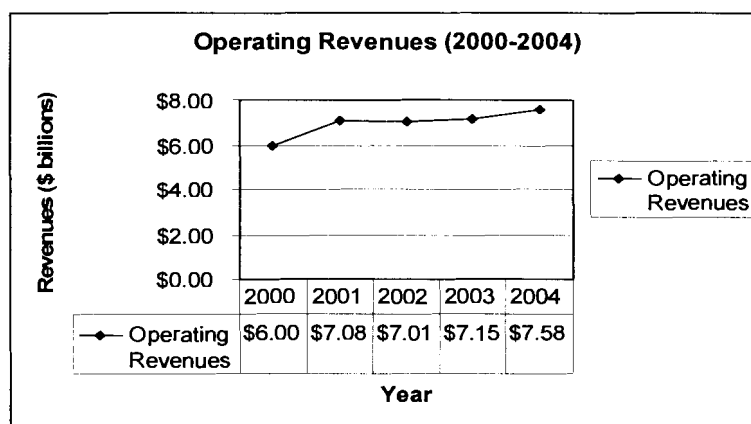
Source: TELUS Annual Reports from 2000 to 2004

Revenue generated per employee has been increasing from 2000 to 2004. The modest increase from 2001 to 2002 is due to the Operational efficiency programs which saw significant

downsizing in TELUS in 2002. The overall increase would indicate that TELUS is becoming more efficient but the majority of these increases have occurred within Mobility while TCI saw an increase and is now holding flat. The leveling of the TCI's revenue per employee could indicate an increasing cost base and lower revenues resulting from a general decline of Wireline industry.

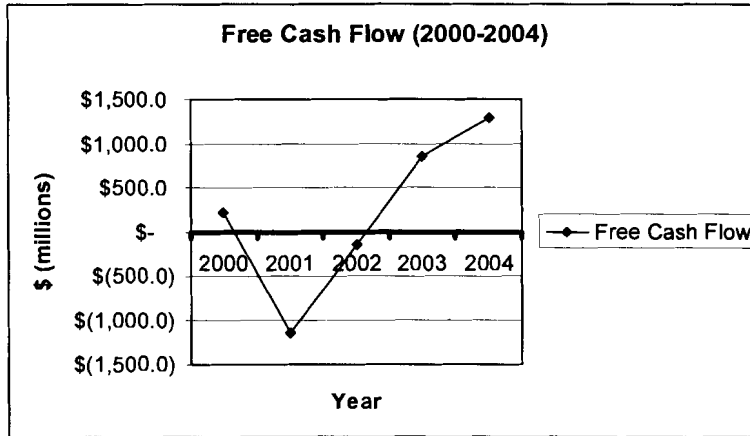**Figure 5.9.2 Revenues Per Employee (2000-2004)**
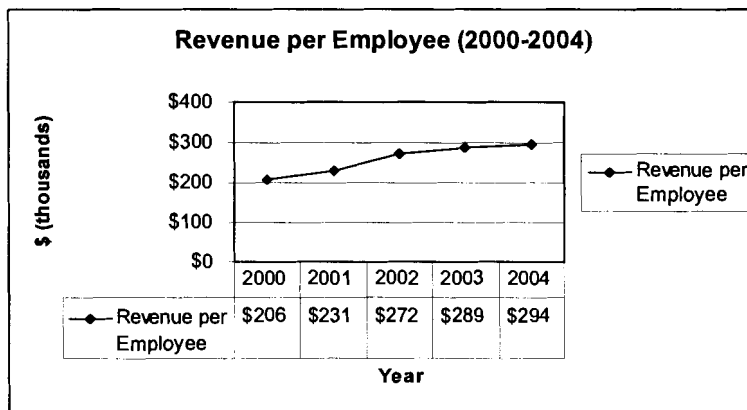
Source: TELUS Annual Reports from 2000 to 2004

5.9.2 Free Cash Flow and Debt to EBITDA

Figure 5.9.3 Free Cash Flow (2000-2004)

Source: TELUS Annual Reports from 2000 to 2004

TELUS free cash flow (FCF) turnaround has been dramatic from 2000 to 2004 and TELUS has been using the surplus to pay down its debt. Figure 5.9.4 shows that TELUS debt to EBITDA ratio remained relatively flat in 2000 and 2001. The ratio significantly reduced from 2002 to 2004; from 3.3X to 2.1X EBITDA. An ever decreasing ratio is consider favourable as it indicates that the company requires fewer future years of earnings to pay off its debt levels. The downward trend also corresponds with the increased FCF for those years. TELUS' FCF estimates for 2005 is $1.3 billion which should help to further improve leverage from 2.2 times EBITDA in 2004 to around 1.7 times at the end of 2005. If this continues, TELUS could risk becoming under-leveraged in the near future, and therefore should consider a stock buyback.

Figure 5.9.4 Debt to EBITDA Ratio (2000-2004)

Debt/EBITDA Ratio

	2000	2001	2002	2003	2004
—◆— Debt/EBITDA	3.51	3.49	3.34	2.69	2.10

Year
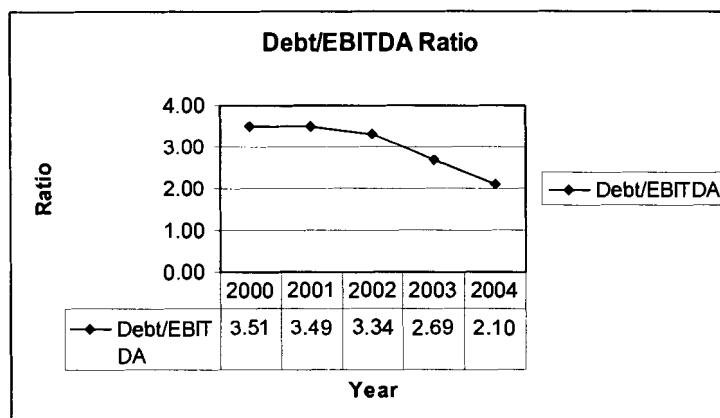
Source: TELUS Annual Reports from 2000 to 2004

5.9.3 Liquidity

Table 5.9.1 Current Ratio (2000-2004)

TELUS	2000	2001	2002	2003	2004
Current Assets	$1,748.8	$1,442.6	$1,173.2	$1,517.3	$2,647.6
Current Liabilities	$6,669.5	$1,862.3	$2,181.0	$2,155.1	$1,969.1
Current Ratio	0.26	0.77	0.54	0.70	1.34

Source: TELUS Annual Reports from 2000 to 2004

The current ratio is a test of liquidity for a company. Table 5.9.1 shows clearly that TELUS' liquidity had increased substantially from 2000 to 2004. The 2004 value of 1.34 is much higher than BCE's value of 0.70. TELUS was able to maintain liabilities at a stable level while dramatically increasing its assets.

5.9.4   Enhancing Shareholder Value

TELUS is on solid financial footing and announced four initiatives to return value to shareholders. The first is a 33% dividend increase from $0.60 per share/annum to $0.80 per share/annum. The second is to set future dividend payout to 45-55% of EPS. The third is a 25.5 million share buyback consisting of up to 14 million common and 11.5 million non-voting shares. The final initiative is to employ measures to restrict earnings dilution. TELUS will repurchase

shares in the market to offset the issuance of shares under the dividend reinvestment plan (DRIP).

It will also eliminate the 3% discount on the purchase price of DRIP-related shares.

6 KEY ISSUES

6.1 Systems and Processes

6.1.1 Impacts of Standards on CLEC

The success of the TCI's CLEC is greatly influenced by the ILEC. For example, all the secondary supporting activities, some of the primary support activities, and the products and services offerings are provided by the ILEC.

The CLEC has a stronger culture of flexibility and customer focus, but it is bridled by the standard driven mindset of the ILEC. The CLEC marketing and sales teams enjoy much autonomy. The network management, installation, and custom solutions teams must follow standards and processes set by the ILEC. The ILEC develops services that are standardized across its customer base, but the services may not fit the needs of CLEC's customers.

There is low customer density for the CLEC, resulting in service offering needs that are different than that of a more generic service offered to an ILEC's customer. The ILEC needs to be more flexible to the nuances of the CLEC's customers and be able to build in the possibility of customization services. If the CLEC modified an ILEC service to suit a customer and the design was accepted by the customer, it still required approval from the ILEC Planning and Engineer team. This results in months of delay to the service rollout as well as expenses incurred by P&E to retest the viability of the solution. Too much rigidity to standards can stifle the CLEC's enthusiasm to be creative in meeting the customer needs and providing excellent customer service.

6.1.2 Legacy & Disconnected Systems

TCI is one of the higher priced suppliers of many of the standard services that its competitors provide. TCI needs to have effective OSS to enable its workforce to deliver exceptional customer service experience and dramatic efficiency gains.

TCI has many legacy systems such as order tracking and billing that are currently in use. The order tracking system was originally used for the voice and LD businesses. Later, this was adapted for data/IP business. Some of these systems are disconnected.[34] There are also separate billing systems dedicated for voice, LD, and data/IP. For example, when a TCI order entry clerk enters an order for a business customer for voice and data/IP services, the order must be entered into several disconnected systems. Orders would be entered into ECOPS, customers' information into ESD, services to be managed and SLAs into SMA, business billing into CRIS Special, and data/IP billing into Arbour. Since the systems are functionally separated from each other, they do not share information, and as a result, it necessitates manual re-entering of the same information to several systems.

A data/IP order would flow via ECOPS to the installation team, and the installers accept the work in ECOPS. Once the installers have completed their work on the customer's premise and the CO, they work with the provisioners to perform turn-up testing on the equipment. The provisioners must work with several systems before the service is considered complete and ready for billing. They must monitor the network devices in Spectrum, collect network traffic in Nethealth, collect billing usage data in NOCM, test alarming in Lynx, activate the service in SMA, activate billing and close off the order in ECOPS. A provisioner must interact with seven systems before completing an order. If a piece of customer information was incorrectly entered during one of the previous manual re-entries or if a device network address is incorrectly used, it would require a provisioner's additional time to resolve the problem, thus decreasing

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[34] They are stand-alone systems with no integration to another system

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productivity. There are many opportunities for efficiency gains but they require capital investment to build new systems and/or to integrate them. It may not be financially feasible to invest a large amount of capital towards systems that support voice and LD business as they are the declining revenue segments of the industry. However, investment for OSS systems on the data/IP side may be warranted.

These antiquated and disconnected systems hurt TCI in providing efficient customer service levels. There are issues ranging from manual re-entry of work to the number of systems requiring interactions to process an order.

6.1.3 OSS & Operational Efficiency

TCI also uses integrated network operations support systems (INOSS) to manage its network and its customers' network. INOSS is an integration of eight groups of systems that monitors the network issues, alerts of network outages by creating a trouble ticket with the affected customer's information and SLA, and pages the appropriate TCI support team to respond to the issue. This OSS system was adopted six years ago from TELUS when TELUS merged with BCTel and has essentially remained unchanged. With the impending release of new services such as VoIP and TTV, more OSS systems are needed to monitor and manage these services.

Although there is an OSS team that is responsible for OSS tools, the many reorganizations within TCI have created an issue. Many teams are confused in regards to their roles and responsibilities. This results in each team wanting their own QoS video tools and devoting resources to their selection, testing, and implementation. The efficiency of a consolidated approach by one team is lost because the time and resources are duplicated among several the teams.

Operational efficiency improvement should translate to operational savings and the OEP has been successful to date. TCI's OEP is trying to streamline processes and optimize the use of networks and other assets. TCI employees are asked to absorb the workload and work better but there is a limit to this type of improvement. This improvement can be extended if correct OSS tools are deployed.

As TCI introduces new services into the high speed Internet market with new technology such as ADSL 2+, the services cannot be provisioned on the current legacy systems without extensive workarounds that require costly manual intervention. Increased manual interventions would lead to further inaccuracies for data and records. ASF is trying to remedy this concern.

ASF is one of the largest OSS initiatives that TELUS has attempted. Some of the goals are to consolidate systems, improve customer data records, and align and automate processes. It will involve over 80 provisioning systems and processes currently used for the voice and data/IP segments. The project will span three years, involving almost all segments of TCI and is the second item on the Investment Management Team (IMT) priority list. The IMT is a senior executive team that prioritizes enterprise capital expenditures and optimizes ROI.[35] There are four phases to ASF and phase one is estimated to cost over $20 million.

ASF is considered one of TCI's most important initiatives, so people are asked to work longer hours in order to deliver and meet the aggressive ASF timeline. However, due to the previous OEP downsizing, there has been increased workload, responsibility, and stress for the average TCI employee. There is a danger that these people will soon be extended beyond their capacity. To aggravate the situation, TELUS has not concluded a contract with the TWU which has resulted in a ban on vacations for all MPs. Thus, MPs do not have any extended period of time to decompress and recharge. Union members dissatisfied by the lack of progress with their

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[35] ROI = Return on Investments

contract negotiations will be more resistant to accepting any changes. The union has recently announced to TELUS that it will no longer be working overtime until the contract negotiation is completed.

Given these concerns, the complexity of integrating 80 systems and processes, a workforce that is stretched to its capacity, and a union membership that lacks motivation, the success of ASF could be in jeopardy.

6.2 People and Culture

6.2.1 Unresolved Collective Agreement

The TWU and TELUS have been negotiating a contract since the previous one expired in 2000. TELUS cites a changing competitive landscape and asks for changes to the collective agreement but the union is steadfast and inflexible. As a result there have been escalations from both sides. In 2004, the union frequently aired its complaints to the press and broadcasted TV advertisements asking TELUS customers to complain to the CRTC about TELUS' degraded customer service. At one point, the union was even asking customers to leave TELUS and seek service from its competitors. Since then, TELUS has imposed a soft-lockout and the TWU has instructed its members to work to rule and not to accept any overtime (OT) work. Although there is no evidence linking responsibilities to the union, there have been acts of vandalism with cut cables in various parts of BC.

This situation poses several concerns for TELUS. The non-acceptance of OT means that TCI will have more difficulties scheduling network changes in the evenings or weekends, as well as quick resolutions of after-hours network outages. An unhappy and possibly antagonistic union workforce is less inclined to adopt to any cultural change initiatives, more apathetic in providing exceptional customer service, and more resistant to accepting process changes or work restructures.

The MPs are also affected. Since the soft-lockout gives the union the right to strike at any moment, TELUS must be prepared for such a situation and has implemented a vacation embargo for all its MPs. Some MPs are allowed vacation if they received approvals from their manager, their Director, their Emergency Operations Plan (EOP) manager, and if they agree to return at their own expense within 24 hours of a recall. As a result, MPs do not have the opportunity for a longer period of rest to alleviate stress and fatigue. This creates a situation where it would be difficult for them to consistently perform at a high level. If the situation persists much longer, MPs could face burn-out and the number of human errors will increase, possibly resulting in an increase of network outages. TCI's overall efficiency and customer service level will likely decline.

6.2.2   Shifting Culture

To be successful in the face of intense competition, TCI is trying to encourage the development of a more entrepreneurial culture among its employees. The process has been slow because many Union and Traditional workers are entrenched in a historic monopolistic way of life. Some of the Traditional MPs lack the skills or capacity to change and they are continuously employing previously established procedures and standards. They become more risk averse which stifles innovation. The Union and Traditional cultures hinder TCI from increasing operational efficiencies, providing exceptional customer service, and competing as a CLEC.

7 RECOMMENDATIONS

TCI employs components of TELUS' generic strategy of differentiation as guiding principles when it competes as an ILEC and CLEC. TELUS needs to grow its business in Eastern Canada to offset revenue declines in local markets. The declines are predominately from the local and LD segments while data/IP has shown growth. TCI competes for BCE's data/IP customers. Although TCI predominately uses a differentiation strategy, the strategy is enhanced by the service pricing advantage inherited through its CLEC status. It can price its products and services approximately 15% less than those of BCE, and BCE is unable to respond due to CRTC regulations. The pricing advantage is ineffective unless customers perceive TCI as a credible communications supplier that provides quality products and services.

TCI needs to develop new products and services to enhance its bundle offerings. The new additions, such as consumer VoIP and TELUS TV, will enable TCI to offer complete bundles and unique services that will assist TCI in defending its ILEC territories and in capturing CLEC market shares.

There is a need for OSS tools to manage new products and services as they are developed. Properly selected OSS tools could help TCI to control costs through automation and to improve customer service through proactive tools. Currently, TCI has many legacy and disconnected systems that are high areas of inefficiency.

There is also a concern about the cultural mix of TELUS. The Union and Traditional cultures are not flexible enough to enable TELUS to provide superior customer service. The Entrepreneur culture is the one that TELUS wants to foster. TELUS' HR department is

attempting to shift the other two cultures towards that of the Entrepreneur but the process has been difficult.

7.1 Systems and Processes

7.1.1 Impacts of Standards on CLEC

TCI needs to remember that its CLEC is an important resource to gain new revenues. Therefore, it is imperative that the ILEC fully supports CLEC operations. The CLEC needs to communicate more frequently to convey the needs and nuances of the Eastern customers to the ILEC. Issues with standardizations may be resolved by involving the CLEC earlier in the development of new services and building accommodations that would easily facilitate customization of services. The P&E team also needs to establish closer relationships with the CLEC in order to build trust to streamline test and acceptance of custom solutions.

7.1.2 Legacy & Disconnected Systems and OSS & Operational Efficiency

As TCI ventures forth exploring new data/IP technologies, these new services require new skills and OSS tools for testing, provisioning and management. Since the data/IP segment is the only industry growth area for TCI, there should be more acceptance of capital investment in this area.

TELUS should continue examining new OSS tools and implement an integrated OSS. However, some OSS initiatives, such as ASF, require several years to implement. For quickly implemented, short-term solutions, TCI's Quick Wins (QW) team should be engaged. The QW team can artificially integrate many systems together using a common user interface. A user could access and enter information on one screen, and this information could be automatically replicated to the several disconnected systems; thus, reducing manual re-keying of information. A common user interface also reduces training costs because a user only requires learning the usage

of the interface and can forego learning the underlying systems. The QW team can deploy nimble and efficient solutions until the permanent, integrated system is in place.

OSS strategies and efforts should be consolidated to one team and then communicated across TCI, so that all areas understand to approach them for their OSS needs. OSS tool selection, testing and deployment will be concentrated onto one team, thus improving OSS efficiency.

One of the mandates for the OSS team would be to concentrate on automation and consolidation of the provisioning and management of services. With consolidated systems and more automation, there would be less manual intervention and human errors. The efficiency improvement should result in more opportunities for the TCI workforce to deal directly with customers, since they will require less time to deal with systems, processes, and errors. TCI's workforce will have more time to work on complex and challenging issues, resulting in a better customer experience at a lower cost to the organization. The complex and challenging work could have an added effect of increased job satisfaction for the TCI team and quietly increasing the Entrepreneurial spirit. TCI should recognize that transformational OSS initiatives, which challenge many of the norms of how TCI works, will aid in a positive shift of culture.

OSS can greatly help TCI, but by itself, it cannot give TCI a sustainable competitive advantage. The company also needs to be successful in moving the culture to one of Entrepreneur.

OSS provides efficiency gains through the automation of manual work. TCI can leverage the OSS improvements to free employees to focus on more challenging work but some employees lack the skills and knowledge to perform it well. Some Wireline Traditional employees, lacking IP skills and fearing job security, are risk averse and resistant to change. They prefer to repeat previously established procedures rather than adopt innovative procedures that may provide greater operational efficiencies. To actively pursue the cultural change, TCI can enlist the

assistance of HR to establish educational initiatives to equip the workers with the required skills. TCI identifies the skills needed and HR creates the educational framework to provide those skills. As employees' skills increases, their fear of obsolescence will recede and their resistant to change will also reduce.

TCI needs to further collaborate with HR to develop incentive programs use to motivate employees to adopt new skills. If financial incentives are selected as a motivation device, they should be integrated into the existing performance bonus program. TCI must clearly communicate that employees will be rewarded based on tangible skills improvement.

7.2 People and Culture

7.2.1 Unresolved Collective Agreement

The unresolved collective agreement is one of the impediments to shifting the Union culture. It is difficult to recommend a solution to the issue of the unresolved collective agreement. TELUS needs to continue to educate its union workforce to the realities of an intense competitive environment. Through education and understanding, there may be some concessions. If this is not possible, then it may be necessary for TELUS to bring the situation to a head and remove the uncertainty thus allowing the company to function effectively. TELUS also needs to educate its MPs of the competitive environment because, in the event of a strike, TELUS needs the MPs to have a collective resolve.

By educating its MPs of the intense competition, TELUS are also "lighting the fire for change" that James Belasco describes in "Teaching the Elephant to Dance: Empowering Change in Your Organization." Most organizations are resistant to change, because the people are conditioned to routine behaviours that are entrenched in their environment. The only way to shift the culture is to create a sense of urgency, so that the people believe that the change must be

adopted in order to survive. The urgency is the impetus for people to change, and intense competition is TELUS' impetus to change.

7.2.2 Shifting Culture

Changing the culture of TELUS' union members and Traditional MPs will be a long and difficult process but it is absolutely necessary. TELUS needs to continue its financial incentive program of rewarding high performers who demonstrate autonomy, competence, good judgment, and execution. It must clearly communicate the characteristics of a high performer, so that the general populace has an understanding of what to strive towards. The communication should be periodically reinforced for the benefit of new employees as well as for stragglers who have not yet conformed. Leaders at all levels should exemplify the Entrepreneur culture to demonstrate the commitment to the high-performance culture. TELUS should eventually consider departing people who refuse to change, as their resistance will undermine the overall goal of shifting the culture. If TELUS is successful, an Entrepreneur spirit combined with effective OSS will give TELUS a sustainable competitive advantage.

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