

MAKING CONNECTIONS

An Exporter's Guide to Canada's Telecommunications Sector

Canada

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Contents

Introduction	2
1 International Trends in the Telecommunications Market	3
1.1 Wireless and wireline	3
1.2 Old customers, new customers	4
1.3 Mergers and acquisitions	4
1.4 Opportunities at the door	5
2 How EDC Sees the Sector	6
2.1 Telecom trends	6
2.2 Our developed markets	6
2.3 Our emerging markets	7
3 Showcasing Canadian Excellence	9
3.1 Centres of excellence	9
3.2 World-level companies	11
4 Challenges and Solutions for Canada's Telecom Sector	14
4.1 Innovation and its issues	14
4.2 The move to offshoring	15
4.3 Size limitations	16
4.4 Entering new markets	16
4.5 Market support	17
4.6 Market fluctuations	17
4.7 Challenges and solutions: A summary	18
5 Markets and Buyers for Canada's Telecommunications Exporters	19
5.1 Canada's top 10 developed markets	19
5.2 Canada's top 10 emerging markets	25
6 Supporting the Industry	31
6.1 EDC's key role in telecommunications exports	31
6.2 Government initiatives	33
6.3 Sector-specific resources for telecom exporters	33
6.4 General resources for exporters	35
7 Canada's Telecommunications Sector at a Glance	36
7.1 Key subsectors	36
7.2 Our biggest customers	38
7.3 Our best market prospects: EDC's estimate	39
7.4 Other indicators	40

Introduction

For more than a century, Canada has been a global leader in telecommunications. It was in Canada that Alexander Graham Bell and Guglielmo Marconi carried out much of their original work, and Canadians have been using telecommunications to bind the country together ever since.

This Guide is intended to help Canadian telecom companies learn about the global telecommunications market and how they can do business there. It explores the present state of the sector in Canada, examines how it fits into the world marketplace and provides basic information about both existing and potential export markets. At the same time, because there's far more information available than will fit into a single publication, the Guide refers to numerous other resources that will help a telecommunications company decide how to plan and carry out its export strategy.

Such a strategy is essential for most Canadian telecom firms, simply because our domestic market by itself isn't nearly large enough to support the sector. Telecom businesses recognized this long ago, of course, and most are vigorously pursuing markets abroad. This Guide is intended to make that pursuit just a little easier.

International Trends in the Telecommunications Market



In 2000, the global telecom sector's abrupt crash sent Canada's equipment manufacturers into a steep downward slide that lasted until well into 2003. Only then did our telecom sales begin to climb out of the trough, and the world turnaround didn't really gain strength until 2004, when our equipment exports finally posted a gain of 12 per cent over the previous year. Since 2004, however, the recovery has proceeded without major setbacks, with Canadian telecom firms participating strongly in the new global growth.

One factor in the upswing is that much of the world's traditional telecom equipment dates back to the 1990s or earlier and is due for replacement. A second cause has been the steady growth of the market for wireless communications; in the decade between 1995 and 2004, Canada's exports of wireless-related equipment increased by almost 150 per cent, while those of wireline equipment went up by only 22 per cent. Finally, growth in demand for broadband in both wireline and wireless for data and media applications is driving increasing levels of investments in the sector.

1.1 Wireless and wireline

Nevertheless, traditional wireline technology remains a core element of the total telecom landscape, particularly in the developed world, and telephone carriers there continue to make major investments in their legacy wireline networks. Our 2005 export statistics demonstrate this quite clearly: wireline technology still accounted for 60 per cent of the year's telecom exports, versus 33 per cent for wireless equipment, including radio and television broadcast technology.

The rapid worldwide growth of wireless will certainly continue, partly because many developing countries are using wireless technology to build their telecommunications infrastructures, and partly because consumer and business demand for mobile communications also continues to grow in developed nations. Other factors contributing to the upsurge in the global telecommunications sector are the Internet's increasing importance to businesses, governments and consumers; the voracious appetite for more bandwidth to support new mobile and wireline applications; and the widespread desire for the consumer services these applications can provide.

Canada has some special capabilities that will help us take advantage of this potential. We remain leaders in wireless innovation and can be well positioned to take advantage of new technologies such as 3G, the emerging third generation of wireless. This advanced technology will support bandwidth-hungry applications including full-motion video, videoconferencing and high-speed Internet access.

1.2 Old customers, new customers

The United States, of course, has traditionally been our chief customer for telecommunications exports, consuming almost 70 per cent of them in 2005. This isn't likely to change anytime soon, given that U.S. businesses are currently ploughing more investment into telecom than they are into computers, peripherals and software combined.

Our exports to the U.K, our second-largest customer, experienced explosive growth between 2003 and 2004, sustained largely by the wireless market. By 2005, however, the U.K.'s wireless penetration rate – the number of wireless devices per person in the market – had reached about 100 per cent, and consequently our 2005 exports were 4 per cent below those of the previous year. Nevertheless, our 2005 exports to the U.K were still above the five-year average, and this modest pace of expansion is expected to continue.

Emerging markets are beginning to afford many new opportunities. India, to take just one example, is undertaking an energetic push to increase its level of wireless penetration. To put this into perspective, consider that some of the operators there have only a small fraction of the total subscriber base, but that this fraction still has more people in it than Canada's entire population. Moreover, penetration rates are still very low in India, so there's a tremendous amount of untapped growth.

Closer to home, Canadian telecom exports to Latin America are rising at a blistering pace, having increased by 56 per cent from 2004 to 2005. The continuing privatization of Latin American telecom networks is sure to provide many opportunities for Canadian firms capable of supplying the needs of this market. Asia offers more possibilities, with China alone forecast to increase its wireless penetration rate from 25 per cent to more than 40 per cent during the next five years.

Penetration rates

The "penetration rate" is simply the number of devices per person in the market. A "wireless penetration rate" or a "mobile penetration rate" of 100 per cent means that there's one such device for every individual in a particular market.

1.3 Mergers and acquisitions

Pressures for mergers and acquisitions have been picking up with the global resurgence of the telecom industry. In late 2005, Spain's Telefónica paid US\$31 billion for O2, one of the largest mobile operators in Britain and Germany. Given Telefónica's pre-existing presence in Latin America, this has created the world's second-largest phone company by number of customers – 170 million of them. By this measurement, only China Mobile is bigger.

Also in Europe, Alcatel SA announced that Alcatel had agreed to buy its U.S. rival, Lucent Technologies Inc. This will create a major new global player with annual sales of US\$25 billion. Across the Atlantic, another large merger occurred in the U.S. in March 2006, when AT&T, which was already among the world's telecom giants, acquired BellSouth for US\$67 billion. As a result, AT&T gained full control over Cingular, the largest mobile operator in the U.S., and the company's stock market value jumped from US\$110 billion to US\$170 billion.

The merger trend is a barometer of companies' concerns about the intense competition for new customers around the world and about the steady downward pressures on prices; it also indicates their recognition that moving outside their domestic or regional markets will help them survive. This isn't an issue just for huge multinationals, either; in Canada, domestic demand can't support the growth and development of viable telecommunications companies, no matter whether they're large or small. International sales isn't just an option any more, it's a necessity.

1.4 Opportunities at the door

This being the case, it's fortunate that the future will provide the Canadian telecom sector with more and more opportunities. Although it's a truism to say that billions of people have never yet made a telephone call, let alone have access to broadband communications, the cliché nevertheless points to the reality of an enormous, untapped market.

Moreover, telecom systems mean far more than simply making communications easier. They are in themselves economic development tools, enabling technologies and sources of competitive advantage. As governments and businesses bring this into clearer focus, the emphasis on telecommunications development will likely become more pronounced – which means new international sales for Canadian telecom firms of every size and type.

2

How EDC Sees the Sector

Canada's telecom equipment exports did very well in 2005, with total sales of \$6.9 billion* for the year and a year-over-year increase of 13.8 per cent – the strongest annual growth since 2000. And since prices for telecom equipment fell during the period, our performance, when measured by unit volume of exports, was even better than the sales figures suggest.

2.1 Telecom trends

In what direction is the sector going, though? In a positive direction, from EDC's perspective. Competition in global markets will certainly become tougher, and export prices will likely weaken by 3 per cent in 2006 and by 2 per cent in 2007, but Canadian telecom equipment exports are expected to grow in spite of this. EDC estimates that they will increase by 8 per cent in 2006, after which they will slacken a little as the replacement cycle slows, but will still turn in an overall growth of 5 per cent in 2007. The physical volume of exports is expected to grow by approximately 12 per cent in 2006 and by 7 per cent in 2007.

The technology replacement cycle has been a major factor in the recent growth of exports. Telecom equipment tends to depreciate relatively quickly, and much of the equipment that was purchased and put into service in the late 1990s will be replaced during the next few years. And, while investment in telecom equipment is unlikely to reach the peak of the late 1990s, EDC expects it to remain solid through 2007, ultimately returning to its long-term trend rate.

2.2 Our developed markets

In the developed world, the major end markets for Canadian equipment are the telecom services sector in particular, and the business sector in general. Spending on communications equipment in the United States, for instance, is likely to increase by almost 15 per cent during 2006 as U.S. telecom service providers spend heavily to upgrade their networks.

** All currency figures are in Canadian dollars unless otherwise indicated.*

Because Canada exports almost 70 per cent of its telecom equipment production to the U.S., this strong demand south of the border has been very positive for Canada's telecom manufacturers; during 2005, our exports grew by 14.8 per cent. EDC expects this trend to continue as the U.S. demand for telecom imports increases by 4 per cent in 2006 and by 3 per cent in 2007. As a result, Canadian telecom exports to the U.S. are expected to expand by 9 per cent in 2006 and 5 per cent in 2007.

The U.S., of course, is not our only customer, although it is by far our largest. Running second during 2005 was the Eurozone, with growth of almost 11 per cent, which edged the U.K. out of this spot. In fact, our telecom exports to the U.K actually fell by 4 per cent, although they were still well above the previous five-year average and are expected to remain so. Sales to Germany, Spain and Italy posted strong results in particular, and the Eurozone is expected to continue to increase its purchases of our equipment as demand and technology continue to evolve.

Another source of growth is that consumers as well as businesses are retiring obsolescent equipment; the replacement of older cellular phones with new models is driving strong expansion in the demand for these devices, resulting in an increase in shipments of more than 16 per cent in 2005.

2.3 Our emerging markets

In 2000, only 3 per cent of Canada's total telecom exports went to emerging markets, but as of the end of 2005, the proportion had increased to more than 10 per cent.

This is a continuing global trend as emerging markets develop infrastructures that will support more advanced telecommunications systems. China, for example, has become a major presence in the global telecom market and is expected to account for much of the Asia-Pacific region's growth in supply and demand in this sector. China's mobile penetration rate is forecast to increase from 33.1 per 100 people to 42.8 per 100 during the next five years, while wireline subscribers are expected to increase from 31.1 per 100 people to 40.2 per 100. In contrast, Canadian exports to other Asian markets are expected to grow at a much slower rate than the 14 per cent that is expected for China during 2006.

On the other side of the world, Canadian telecom exports to Latin America are expanding at a tremendous rate, up by 56 per cent in 2005 and expected to grow by another 18 per cent in 2006. Telecom markets all over Latin America are starting to be privatized, or have been privatized, and the funds from such privatization are being committed to upgrading and expanding existing networks. This will present many opportunities for Canadian firms to supply a wide variety of equipment and services to the market.

Table 1. Canadian telecommunications export outlook

Top Markets	Exports (\$Billion) (2005)	Per Cent Share of Exports (2005)	Export Outlook (per cent growth)		
			2005	2006(f)	2007(f)
US	4.7	68.8	14.8	9	5
Eurozone	0.5	7.0	10.6	7	4
United Kingdom	0.5	7.0	-4.0	3	3
Asian NIE's	0.2	2.7	2.7	2	1
China	0.1	1.8	29.6	14	8
Japan	0.1	1.8	6.7	3	2
Oceania	0.1	1.7	21.3	16	13
Total	6.9	100.0	13.8	8	5

Source: EDC Economics. 2005 actual, 2006 and 2007 are forecast.

The Asian Newly Industrialized Economies (NIE's) are Hong Kong, Singapore, South Korea and Taiwan.

Showcasing Canadian Excellence



Canada's telecom companies are among the best in the world, with our primary strength lying in our equipment manufacturers. Firms such as Research in Motion (RIM) have gained international recognition, and establishments like Industry Canada's Communications Research Centre have developed technologies that have been commercialized by private-sector companies and are now being sold around the world.

3.1 Centres of excellence

Canada has numerous incubators of cutting-edge telecommunications technology. Some of the most innovative telecom R&D in the country is being encouraged and carried out through the following institutions, industry associations and consortia.

3.1.1 Canada Network of Wireless Centres

The Canada Network of Wireless Centres (CWCnet) leverages Canada's strength in wireless communications R&D to enhance the productivity, commercialization and innovation capacities of Canada's wireless small- and medium-sized companies. It provides these companies with the infrastructure they need to develop and test their wireless products and services in order to move them toward commercialization.

► www.cwcnet.ca

3.1.2 Communications Research Centre Canada

The Communications Research Centre Canada (CRC) is the federal government's main research centre for telecommunications R&D. CRC laboratories develop and test new wireless concepts, prototypes and products, and collaborate with partners around the world in mobile systems, satellite communication, digital broadcasting, advanced antenna systems, broadband access and network protocols.

► www.crc.ca

3.1.3 International Institute of Telecommunications/International Institute of Telecommunications Research

Founded in 1999 by the Canadian telecommunications industry, with the financial support of the Quebec government, the International Institute of Telecommunications (IIT) is a non-profit organization with more than 70 member companies.

In 2004, a group of IIT members created a research consortium, the International Institute of Telecommunications Research (IIT-R). IIT-R, which is independent of the IIT, is a pre-competitive industrial research consortium for wireline and wireless telecommunications. In collaboration with small- and medium-sized companies, universities, and its member enterprises, IIT-R pursues both fundamental research and experimental development.

▶ www.iitelecom.com

3.1.4 Micronet

Micronet, funded by industry and by the Government of Canada under its Networks of Centres of Excellence (NCE) program, is a country-wide network of researchers from academia, industry and government. It focuses on pre-competitive research into communications, information and instrumentation systems.

▶ www.micronetrd.ca

3.1.5 National Research Council Institute for Information Technology

Established in 1990, the NRC Institute for Information Technology (NRC-IIT) is dedicated to R&D in software and systems technologies. It is a key player in R&D collaborations and partnerships that include businesses, universities and government agencies, both in Canada and around the world. It has facilities in Ontario, New Brunswick, Nova Scotia and Quebec.

▶ www.iit-iti.nrc-cnrc.gc.ca

3.1.6 TR Labs

Based in Edmonton, TR Labs is Canada's largest information and communications technology R&D consortium. Its researchers focus on wireless technologies and networks, autonomous networks, cellular systems, multi-input multi-output (MIMO) systems, software radio and ultra-wideband technologies for short-range, personal area networks.

▶ www.trlabs.ca

3.1.7 Wireless Innovation Network of British Columbia

The Wireless Innovation Network of British Columbia (WINBC) represents more than 150 British Columbia companies, including early-stage wireless firms. It promotes British Columbia as a geographic centre of excellence in the research, development and deployment of wireless communications solutions, and encourages its members to collaborate on technical and marketing projects.

- ▶ www.winbc.org

3.1.8 WiTec Alberta

WiTec Alberta is an industry association established to support the wireless and telecom industry in Alberta. It focuses on showcasing the province's resident technologies, helping attract investment and encouraging stakeholder collaboration in technology development.

- ▶ www.witec.ca

3.2 World-level companies

From cellular infrastructures to radio frequency identification technology, Canada's telecom companies are innovating across every subsector of the telecommunications industry. They have helped make Canada a global player in this fast-evolving and fiercely competitive market.

3.2.1 Wireless network management

This subsector includes service management systems, such as provisioning and billing systems, together with gateway solutions for message exchange and access to online content. It also extends to solutions for workflow and customer relationship management. Some companies working in this subsector include:

- ▶ 724 Solutions: www.724.com
- ▶ Bridgewater Systems: www.bridgewatersystems.com
- ▶ Redknee Inc.: www.redknee.com
- ▶ Nortel Networks Inc.: www.nortel.com
- ▶ Alcatel Canada Inc.: www.alcatel.ca
- ▶ Ericsson Communications Canada: www.ericsson.ca

3.2.2 Mobile cellular infrastructure

Advanced mobile networks require sophisticated infrastructures including access and core network solutions, as well as cutting-edge voice, data and fax capabilities.

- ▶ Nortel Networks Inc.: www.nortel.com

3.2.3 WiMAX broadband wireless

WiMax broadband wireless is a family of new technologies related to the IEEE 802.16 wireless standards. It has the potential for high speed-data traffic at ranges of up to 30 miles. Some companies working in this subsector include:

- ▶ Dragonwave Inc.: www.dragonwaveinc.com
- ▶ Redline Communications: www.redlinecommunications.com
- ▶ SR Telecom Inc: www.srtelecom.com
- ▶ Nortel Networks Inc.: www.nortel.com

3.2.4 Fixed wireless access

Fixed wireless access covers a range of technologies that includes community Internet and voice access, supervisory control and data acquisition, and private networks. Some companies working in this subsector include:

- ▶ Harris Canada, Inc.: www.harris.com
- ▶ Redline Communications: www.redlinecommunications.com
- ▶ SR Telecom Inc: www.srtelecom.com
- ▶ Wave Wireless Inc.: www.wavewireless.com
- ▶ Wi-LAN Inc.: www.wi-lan.com

3.2.5 LAN, WiFi and smart antennas

These technologies support corporate wireless networks and public-access hotspots, and include network infrastructures, smart antennas and application management software for wireless IP telephony and two-way messaging. Some companies working in this subsector include:

- ▶ Belair Networks Inc.: www.belairnetworks.com
- ▶ Bridgewater Systems: www.bridgewatersystems.com
- ▶ Nortel Networks Inc.: www.nortel.com
- ▶ Spotwave Wireless: www.spotwave.com

3.2.6 Wireless data devices

It was from this subsector that RIM's famous Blackberry emerged. Other wireless devices created or under development here are wireless PC cards, embedded wireless modules and enhanced productivity software. Some companies working in this subsector include:

- ▶ Consilient: www.consilient.com
- ▶ Psion Teklogix: www.psionteklogix.com
- ▶ Research In Motion (RIM): www.rim.net
- ▶ Sierra Wireless Inc.: www.sierrawireless.com

3.2.7 Satellite communications

Satellite communications technologies include terminal equipment for voice, data and video, microwave communications products, telemetry devices and space-based hardware subsystems. Some companies working in this subsector include:

- ▶ Advantech AMT Inc.: www.advantech.ca
- ▶ COM DEV International Ltd.: www.comdev.ca
- ▶ Polarsat Inc.: www.polarsat.com
- ▶ MacDonald, Dettwiler and Associates Ltd.: www.mdacorporation.com

3.2.8 Mobile workforce applications

Mobile enterprises require technologies and applications for scheduling and dispatch, vehicle tracking, maintenance management, secure mobile email and business intelligence. Some companies working in this subsector include:

- ▶ Infowave Software Inc.: www.infowave.com
- ▶ MDSI Mobile Data Solutions Inc.: www.mdsi-advantex.com

3.2.9 Radio frequency identification

Radio frequency identification (RFID) uses tiny radio tags to track objects and even people. The technology includes not only the tags themselves, but also the real-time location systems needed to follow them. Some companies working in this subsector include:

- ▶ CSI Wireless Inc.: www.csi-wireless.com
- ▶ Identec Solutions Inc.: www.identecsolutions.com
- ▶ SAMSys Inc.: www.samsys.com

4

Challenges and Solutions for Canada's Telecom Sector

The resurgence of the global telecommunications market has brought with it intense competition for customers, together with a steady downward drift in prices for equipment and services. Huge Asian companies like China's ZTE have become strong players, and even in countries where there are no local telecom manufacturers of consequence – such as Russia – Canadian companies face brisk competition not only from large western exporters like Alcatel, Siemens, Ericsson, Motorola and Lucent, but also from non-Canadian smaller companies that are looking for their own niche markets. This, obviously, presents Canadian telecom firms with a complicated mix of challenges and strategic needs.

4.1 Innovation and its issues

Maintaining our ability to innovate is crucial because of the current explosive growth in mobile and wireless communications, which is occurring both in developed nations and in many developing countries. For the latter in particular, the cost and time required to construct wired networks are prohibitive, so they are bypassing wireline technology almost completely and moving directly to wireless technologies for their telecommunications infrastructures.

Much of the telecom R&D being done in Canada recognizes this trend, and has concentrated on finding ways to move more data through the various types of wireless channels as well as through the traditional wireline pipes. One example is the work going on in Multiple In and Multiple Out (MIMO) technology, which is an antenna and radio technology intended to punch signals through urban environments that are noisy and dense. Another is micro-electro-mechanical systems (MEMS) technology, which is developing nanotech-level devices for a myriad of applications such as optical switching and high-speed wireless applications.

Even so, there's reason to be concerned about the current state of Canada's R&D performance, which is lagging despite past incentives to encourage it. Moreover, we confront an increasing ability among our overseas competitors to do leading-edge research and development as well as we can – and at a lower cost.

India, for example, graduates about 300,000 engineers a year, and this provides a huge pool of well-trained knowledge workers that may eventually match our own capabilities in R&D. Other countries, like China, are moving in the same direction. Given that we depend on our skills in innovation and advanced technology to make up for the offshoring of telecom equipment manufacturing during the past few years, the prospect of falling behind our competitors in this area is a concern. Comprehensive support from business, government and academia for the R&D side of the sector, as well as for the training and educational infrastructure that supports it, will be crucial to maintaining our lead.

As a result of this concern, the Government of Canada has set up the Technology Commercialization Task Force to recommend ways in which Canada can improve its performance in all areas of technology, including telecommunications. Still another initiative, this one from the CRC, is bringing together wireless technology clusters from across the country into an organization called the Canada Network of Wireless Centres (CWCnet), which will help companies test and launch their products.

Financial incentives provide another avenue for strengthening the R&D sector. The Canadian Advanced Technology Alliance (CATA) and the Information Technology Association of Canada (ITAC) have been petitioning the federal government to improve the current scientific research and experimental development tax credit to make it less restrictive and easier to use, especially for smaller companies. Other possible strategies include accelerated depreciation for equipment acquisition, and a strong push by government to speed up the adoption of new technology in other sectors, so that Canada may become more competitive overall.

Why are we strong?

Canada has more than a century of telecommunications experience.

We possess major expertise in both niche and wide-application technologies.

We are committed to researching, developing and commercializing new technologies.

Our telecom companies enjoy strong government support both internationally and domestically.

4.2 The move to offshoring

Another issue is the move toward manufacturing telecom equipment outside Canada, to countries where production costs are more competitive. Nortel like most of its competitors, for example, no longer manufactures its own hardware. Instead, it has focussed on its core operations, primarily research, design and development, and has sold its manufacturing operations to Flextronics, a multinational based in Singapore.

Somewhat offsetting the move to offshoring is that many Canadian companies, while they manufacture components and subsystems offshore, still assemble and test the final products here in Canada. Moreover, shifting lower-value segments of the manufacturing process to more cost-effective locations can increase a company's productivity. This generates more revenue that can be reinvested in R&D, further increasing the sector's competitiveness.

4.3 Size limitations

A further problem is the small size of most of our telecom companies; a list of the top 100 Canadian firms, is made up mostly of small- and medium-sized companies.

Unfortunately, it's increasingly difficult for these companies to compete in the current global telecom environment. One challenge is that they usually can't provide complete, turnkey installations in the way that large enterprises can. Consequently, because international customers are generally looking for companies that are big enough to supply end-to-end solutions, this limits the opportunities open to our telecom sector as a whole. The long-term solution, which is easier stated than accomplished, is to encourage the development and formation of large Canadian firms that can provide one-stop, turnkey solutions for their buyers. A more practical short-term solution is to encourage supply by smaller Canadian business to these turnkey solutions providers which include Nortel and its competitors such as Alcatel, Siemens, Motorola, Nokia etc., as well as Huawei and ZTE in China.

4.4 Entering new markets

The United States is by far our largest telecom market. It's fiercely competitive and always has been, and for the most part it's well understood by the Canadian companies doing business there. But given where so many of the opportunities are, wireless companies in particular will inevitably have to move into emerging markets, such as Brazil and Russia, where our experience may be limited. Doing business in these regions is fraught with challenges such as

- ▶ an unfamiliar business and legal environment;
- ▶ regulatory and tax issues;
- ▶ infrastructure shortfalls;
- ▶ political risks and buyer financing risks; and
- ▶ cultural differences.

Where do we fall short?

The small number of major Canadian companies hampers our ability to compete and causes us to miss opportunities.

The inability of our smaller- and medium-sized companies to provide turnkey solutions shrinks our potential customer base.

We are improving in overall R&D performance, but not as quickly or effectively as some of our competitors.

Where do our opportunities lie?

The U.S., our largest single market, is investing heavily in telecom equipment.

Emerging markets, such as China and India, offer huge potential for Canadian telecom exports.

Smaller- and medium-sized companies can prosper in these emerging markets by partnering with larger companies.

New technologies such as 3G may provide major opportunities abroad.

All of these have to be identified, understood and dealt with for the particular market that the telecom company wants to enter. Market entry in itself usually involves a lengthy process of establishing personal and business relationships before the first deal can be struck, and most authorities agree that the best way to manage this is to find a local representative or company with whom the Canadian company can partner. Selecting a local representative is a delicate process and carries with it certain risks, but it is nonetheless an important issue. Local representatives should already have working level relationships with buyers and government officials. The benefits range from opening doors which otherwise might be closed to helping navigate local customs and import rules. Poor management of the latter has been known to cost a company its sale.

While the big companies receive most of the press coverage in these emerging telecom markets, smaller Canadian companies definitely have a role in them as well. A niche player with rich intellectual property (IP) can be quite competitive abroad, and can look for opportunities to partner with a larger firm that needs its specialty product or service. One word of warning, though: any company whose major value lies in its IP must recognize the threat of losing it to misappropriation, reverse engineering or even outright theft. In some jurisdictions, this danger can be quite acute, so protecting IP is especially crucial in those markets.

4.5 Market support

Canadian financial institutions such as EDC are supportive of Canada's telecom exporters, and exporters can take full advantage of the assistance available. However, Canada isn't the only country providing such help, and almost all our telecom competitors have their own forms of government and export credit support. In the developed world, moreover, export creditors use OECD-established rules – commonly known as the OECD Consensus – to keep the financial playing field approximately level. However, non-OECD nations aren't bound by the Consensus, and we can have trouble competing against export credit support from such countries.

What threatens our telecom sector?

We are facing relentless and effective competition from foreign companies, especially Chinese firms.

The increasing ability of overseas companies to equal our R&D and innovation capacities may lead to decreased demand for our products and expertise.

We are encountering growing competition in export credit support from countries that don't work by the OECD Consensus.

4.6 Market fluctuations

Naturally, we also have to cope with the normal rise and fall of markets. The Asian market for Canadian telecom equipment is expected to weaken during the next two years as domestic companies in the region develop capacity to meet local demand. Such changes are going on all the time and must be carefully monitored, especially in an industry where technologies, applications and markets evolve with such speed – as the abrupt crash of the global telecom sector in 2000 so painfully demonstrated.

4.7 Challenges and solutions: A summary

The Challenges	What We Can Do
<p>The increasing ability of overseas companies to equal our R&D and innovation capacities may lead to decreased demand for our products and expertise.</p> <p>We are improving in overall R&D performance, but not as quickly or effectively as some of our competitors.</p>	<p>Commit significant R&D resources to emerging technologies such as 3G, which may present major opportunities abroad.</p> <p>Expand support from business, government and academia for R&D.</p> <p>Accelerate depreciation for equipment acquisition.</p> <p>Speed up the adoption of new technology in other sectors to encourage telecom innovation.</p>
<p>We are losing production and service activities to offshore locations.</p>	<p>Encourage foreign firms to invest in Canadian telecom by establishing Canada itself as an offshoring centre.</p>
<p>We are facing relentless and effective competition from foreign companies.</p> <p>The inability of our small- and medium-sized companies to provide turnkey solutions shrinks our potential customer base.</p>	<p>Partner with foreign firms in emerging markets, which offer huge potential for Canadian telecom exports.</p> <p>Take advantage of unique intellectual property to find niches abroad and occupy them.</p> <p>Use federal, provincial and sectoral exporters' resources to identify new markets and facilitate entering them.</p> <p>Continue to concentrate on the U.S., which is investing heavily in telecom equipment.</p>
<p>The small size of most Canadian companies hampers our ability to compete and causes us to miss opportunities.</p>	<p>Seek out opportunities to partner with larger firms.</p>
<p>We are encountering competition in export credit support from countries that don't work by the OECD Consensus.</p>	<p>Use all available assistance from EDC and other Canadian government trade agencies.</p> <p>Be prepared to encounter competitors who are supported by means that fall outside the OECD Consensus.</p>
<p>Market fluctuations can be rapid and unpredictable (such as the 2000 crash).</p>	<p>Monitor market changes using all available resources.</p>

What does the future look like for our telecom sector? While there's no overnight solution for what's facing us, we have crucial strengths in our ability to forge productive relationships with our partners and customers, and in the excellence of the products we offer. Even so, companies that want to survive as telecommunications exporters will have to be smart, nimble and aggressive, and will need to take full advantage of all the government and private resources at their disposal.

Markets and Buyers for Canada's Telecommunications Exporters



Given that international sales could be the lifeline for Canadian telecom companies, where are the most fruitful markets likely to be?

EDC can help identify them through its various research services, including the Trade Opportunities Matrix (TOM). TOM is built on 10 years of data about Canadian trade with 69 countries in 45 industries, and uses long-term economic forecasts, economic and political risk assessments, exchange rate forecasts and many other factors to determine how fruitful a particular market is likely to be. The result is a score that can be used to determine the relative rankings of various markets.

The countries profiled in the following sections are those with the highest TOM scores in developed markets and in emerging markets. Others such as India and Brazil have been identified through other research as having potential for Canadian telecom goods and services. They represent EDC's estimate, as of early 2006, of the best potential customers for Canada's telecom sector. The TOM score for each country appears in parentheses after the country's name.

5.1 Canada's top 10 developed markets

5.1.1 New Zealand (1)

Overall, New Zealand's telecommunications industry is rapidly becoming data-centric, an evolution that is likely to drive growth and equipment purchasing for the next few years. In 2005, for example, Telecom New Zealand announced a seven-year project, worth US\$220 million, that will replace the country's existing telephone network with a Voice Over Internet Protocol (VoIP) platform. This wholesale transition to VoIP is expected to revolutionize New Zealand's telecommunications infrastructure, with the first residential customers coming onto the new network by early 2007. By 2012, the transition is scheduled to be complete, and the new system will carry voice, data and video in a bundled service.

Telecom New Zealand dominates the broadband service provider market, although a few other companies, such as TelstraClear, are offering some competition. The mobile market is served both by Vodafone and Telecom Mobile; however, the penetration level is approaching saturation, which may limit opportunities until 3G services are widely adopted. This is coming, however; Telecom New Zealand has rolled out a 3G mobile network and, in mid-2005, Vodafone launched its own mobile 3G system.

Some major New Zealand telecommunications firms are:

- ▶ DMC Stratex Networks www.stratexnet.com
- ▶ Exicom Technologies www.exicom.co.nz
- ▶ SKY Network Television www.skytv.co.nz
- ▶ Tait Electronics www.taitworld.com
- ▶ Telecom New Zealand www.telecom.co.nz
- ▶ Television New Zealand (TVNZ) www.tvnz.co.nz
- ▶ TelstraClear www.telstraclear.co.nz
- ▶ Vodafone New Zealand www.vodafone.co.nz

5.1.2 Finland (2)

Finland has long been an early adopter of advanced telecommunications; one of the world's best-known cell phone manufacturers, Nokia, is a Finnish company. Domestically, the country's leading telecommunications company, Sonera, is a key player in business data communications, Internet and broadband services.

On the mobile side, the penetration rate is close to 100 per cent; in fact, Finns use far more mobile phones than they do wired ones. The mobile market has been consolidated of late, with larger mobile operators such as TeliaSonera and Elisa Communications acquiring smaller players. However, even the larger companies are running into competition from upstarts that are providing wireline, mobile and Internet services.

The Finnish telecommunications sector is growing quickly overall, with increasing demand for Internet and mobile services and content. Moreover, the country is host to a strong telecommunications R&D cluster; TeliaSonera and Elisa Communications, among others, have been vigorous in developing new mobile applications, a situation which has made Finland an attractive test laboratory for innovative products and services.

Some major Finnish telecommunications firms are:

- ▶ Elisa Communications www.elisa.com
- ▶ Nokia www.nokia.com
- ▶ Saunalahti www.saunalahtigroup.com
- ▶ Sonera www.sonera.com
- ▶ Song Networks www.tdcsong.fi
- ▶ TeliaSonera www.teliasonera.com

5.1.3 Sweden (3)

Like Finland, Sweden is one of the world's most advanced and sophisticated telecom markets. While its population is less than a third of Canada's, it is nevertheless a promising place for our telecom companies. Moreover, the costs of doing business there are relatively moderate, and the workforce is highly trained and has excellent IT skills.

Sweden's potential is especially good in the mobile and wireless area. While the country's mobile market is at the saturation point, other subsectors are very active. Email over wireless is a strong growth possibility, as are 3G services. Other data services, such as gaming, video-on-demand and multimedia downloading, are also poised for growth as 3G achieves more market penetration. As a result, there should be good opportunities for Canadian companies that can provide hardware and applications for high-speed Internet access.

Canadian firms looking for a manageable, advanced market in which to test and refine their products or services, before moving to larger challenges, may find what they need in Sweden.

Some major Swedish telecommunications firms are:

- ▶ Telia www.telia.se
- ▶ Tele2 www.tele2.se
- ▶ Vodafone Sweden www.vodafone.se

5.1.4 Australia (4)

In 1997, deregulation of Australia's telecom sector removed the former monopoly of Telstra, the country's largest telecommunications company. Telstra, nevertheless, still dominates the market by a wide margin and is still the main provider of local wireline services. However, there are now numerous other licensed carriers, offering a complete spectrum of telecom services.

The country's broadband infrastructure, both wireline and wireless, is expanding steadily, thanks in part to the country's highly urbanized population. As a result, WiFi hotspots are proliferating, and broadband wireless networks (WiMAX) as well as Voice over Internet Protocol (VoIP) services are on the near horizon.

The mobile telephone market is close to saturation, so significant market increases are not expected here; however, Australia's three largest mobile operators launched 3G services in early 2005, so this may provide new possibilities. At the infrastructure level also, Telstra and other carriers are continuing to upgrade their networks.

Some major Australian telecommunications firms are:

- ▶ AAPT www.aapt.com.au
- ▶ Hutchison Telecoms www.hutchison.com.au
- ▶ Optus www.optus.com.au
- ▶ Telstra www.telstra.com
- ▶ Vodafone www.vodafone.com.au

5.1.5 Ireland (5)

Ireland's telecommunications sector is growing, with the mobile and wireless sector driving much of this expansion. However, Ireland still has one of the lowest rates of broadband use in the EU, in both the consumer and business markets. As a result, the government has established partnerships with local authorities to develop regional broadband infrastructures in numerous parts of Ireland.

While broadband lags, Ireland's wireless communications sector is very mature and is one of Europe's most active markets. Mobile penetration has reached the saturation point, largely because Irish consumers are very ready to adopt new mobile technologies and services. Reflecting this, Ireland's four cellular network operators – Vodafone Ireland, O2 Ireland, Meteor, and 3 Ireland – are investing large sums in their networks to develop and promote 3G networks, and to offer their subscribers more value-added applications and services through this advanced technology.

Major Irish telecommunications firms are:

- ▶ 3 Ireland www.3ireland.ie
- ▶ eircom www.eircom.ie
- ▶ Meteor www.meteor.ie
- ▶ O2 Ireland www.o2.com
- ▶ Vodafone Ireland www.vodafone.ie

5.1.6 United States (6)

The United States is by far Canada's biggest telecom customer. It imports every type of telecommunications product and service imaginable. Because it's much too complex and extensive to be considered a single marketplace, it's best to approach the U.S. by determining where there are regional or geographical markets for a product or service, and concentrating on those that are most promising.

Once a Canadian telecom company has identified a selection of possible markets, the best thing to do is contact the Canadian Trade Commissioner Service (CTCS) offices at the various Canadian consulates in the U.S. The CTCS trade teams in these locations have an excellent knowledge of the regional markets they serve, and can help with market intelligence, business contacts, information about trade shows and exhibitions, and much more. To locate the CTCS office that serves a particular market, refer to the CTCS web site at www.infoexport.gc.ca.

5.1.7 Norway (7)

Telenor, Norway's largest telecom company, has been increasing its broadband capacity through the expansion of its ground-based wireless and wireline infrastructure, and by building additional digital satellite-distribution capacity. This reflects the rise in demand for broadband wireless data connectivity, which has been increasing since high-speed infrastructure equipment began to come online in late 2004.

In addition, as the use of 3G wireless becomes widespread, there will be increasing demand for new applications, systems software and security enhancements for this technology. The activities of oil and gas companies in the north and along the coast will offer additional opportunities in the wireless subsector. The IP telephony market has also been expanding rapidly and is expected to be substantial by the end of 2006.

As a result, the Norwegian telecom market is expected to grow more rapidly than that of most other EU countries, and is expected to be a good bet for Canadian companies that can provide advanced applications, value-added services and equipment for terrestrial and wireless networks.

Major Norwegian telecommunications firms are:

- ▶ Telenor www.telenor.com
- ▶ Nera SatCom www.nera.no

5.1.8 Austria (8)

In 2005, Austria had a mobile penetration rate of 98 per cent. Mobile telephony is now giving wireline telephony its toughest challenge, and within the wireless subsector itself, the competition for customers has been fierce. Partly as a result of this, mobile operators are moving outside Austria's small market – the country's population is only eight million – into neighbouring markets such as Poland, Hungary and Croatia. At the same time, the uptake of wireless will continue to reduce the market share of wireline telecom.

Broadband is expanding rapidly from its rather low penetration rate of 8 per cent in 2004, and is expected to reach 16 per cent by the end of 2008. As in other developed countries, wireless telephony, the Internet, TV, satellite and cable are converging into a spectrum of services and applications that promise a lucrative market for Canadian firms. For equipment manufacturers, especially those with innovative technologies and products, some of the most rewarding subsectors are likely to be optical-fibre, powerline, WLAN and CATV networks.

Major Austrian telecommunications firms are:

- ▶ 3 Austria www.drei.at
- ▶ Mobilkom Austria www.mobilkomaustria.com
- ▶ T-Mobile www.t-mobile.at
- ▶ Telekom Austria www.telekom.at
- ▶ Tele.ring www.telering.at

5.1.9 Netherlands (9)

The Netherlands telecom services market is expected to continue to grow by 3 to 5 per cent annually during the next few years. Availability of broadband is increasing, business and mobile communications are expanding and new networks are being built. The major Dutch telecom is KPN Telecom, but the liberalized market is promoting competition.

Wireline's share of the telecom market is shrinking as consumers and businesses move to wireless systems, while the use of VoIP via ADSL and cable is growing. The Dutch market for wireless subscribers is almost saturated.

Internet users are turning to cable for their broadband access, and the Netherlands has one of the world's highest broadband penetration rates as a result. More than 50 per cent of Dutch households and 56 per cent of Dutch businesses have broadband.

The best markets for Canadian telecoms in the Netherlands are likely to be value-added wireless, Internet-based communication services, infrastructure installation and maintenance, VoIP services, wireless security applications, and entertainment and multimedia services and applications.

Some major Dutch telecommunications firms are:

- ▶ KPN Telecom www.kpn.com
- ▶ Orange www.orange.nl
- ▶ T-Mobile www.t-mobile.nl
- ▶ Vodafone www.vodafone.nl

5.1.10 Denmark (10)

Denmark enjoys one of the highest rates of Internet and wireless telephony penetration in Europe, and is a world leader in IT spending per capita. Because of this, and because of its technology-friendly population of 5.3 million, it can be an excellent test environment for innovative products and services.

In mid-2005, there were more than 800,000 broadband connections in Denmark, almost triple the 2002 number. DSL connections are the most common, followed by cable, fibre-optic and 3G mobile broadband connections. Several 3G services are already in use and are expanding rapidly as more networks and services are rolled out by wireless providers. Mobile 3G software and applications are thus growth prospects.

For Canadian telecom companies, this growing broadband market promises many opportunities, especially since many Danish municipalities are establishing their own fibre-optic networks. Technology for ADSL speed augmentation, and for packaging high-speed Internet, VoIP and cable TV services, are likely to be in demand.

Some major Danish telecommunications firms (the largest is Tele Danmark) are:

- ▶ Hi3G www.3.dk
- ▶ Sonofon www.sonofon.dk
- ▶ Tele Danmark www.tdc.com
- ▶ TeleSonera www.teliasonera.com

5.2 Canada's top 10 emerging markets

5.2.1 Chile (75)

Chile's telecom infrastructure is technologically advanced and up-to-date, and the country has the highest Internet penetration rate in Latin America. Broadband is expanding quickly via both ADSL and cable, although ADSL usage is now growing faster. Chile is also pioneering the introduction of Broadband Powerline (BPL), which delivers broadband services on electric power lines.

The mobile market is outpacing the wireline sector, which remains flat. The incumbent local telephone operator, Telefónica CTC, holds the bulk of the local and domestic long-distance markets, while ENTEL dominates the international long-distance sector. The mobile penetration rate of 60 per cent (in early 2005) was among the highest in Latin America; the mobile industry is highly competitive, with Movistar Chile the current market leader.

Chile does not manufacture telecommunications equipment, which means a potentially huge market for Canadian firms specializing in mobile telephony and broadband access. WiFi is spreading rapidly and many opportunities exist for value-added services such as VoIP, cellular messaging, hot lines, videoconferencing, teleconferencing and business TV. On the equipment side, there is a market for switching and transmission equipment, wireless communications infrastructure and TV cable network equipment.

Some major Chilean telecommunications firms are:

- ▶ América Móvil www.americamovil.com
- ▶ Telefónica CTC www.telefonicactcchile.cl
- ▶ ENTEL www.entelpcs.cl
- ▶ Movistar Chile www.movistar.cl
- ▶ Telmex www.telmex.com/cl
- ▶ VTR www.vtr.cl

5.2.2 Hungary (63)

During the past decade, Hungarian telecommunications companies have undergone privatization, market liberalization and the adoption of EU regulatory rules. Magyar Telekom continues to dominate the market, but is under pressure from mobile operators and is facing lower wireline revenues. Its subsidiary, T-Mobile, is the market leader in wireless telephony; another subsidiary, T-Online, provides Internet services. Magyar Telekom is also a major player in data communications, cable TV and satellite communications.

Hungary's mobile phone market, with a 93 per cent penetration rate, is close to saturation. T-Mobile launched its commercial 3G network in Budapest in 2005, providing the city's subscribers with video telephony, fast data transmission and other advanced services.

As a result, Canadian firms working in 3G may find opportunities in Hungary; there is also potential demand for advanced switching and routing equipment, as well as other types of data communications and network equipment.

Some major Hungarian telecommunications firms are:

- ▶ Magyar Telekom www.magyartelekom.hu
- ▶ Invitel www.invitel.hu
- ▶ Hungarotel www.hungarotel.hu
- ▶ Emitel www.emitel.hu
- ▶ T-Mobile www.t-mobile.hu
- ▶ Pannon GSM www.pannongsm.hu
- ▶ Vodafone www.vodafone.hu

5.2.3 China (62)

China is already a major player in the global telecom market and, for next few years, is expected to account for most of the sector's growth in the Asia-Pacific region. The country is already the world's largest mobile and wireless market, and most of the growth will continue to be in this subsector, with the mobile penetration rate rising from 33 per cent to almost 43 per cent during the next five years.

As is true for most emerging markets, the demand for equipment and services is expanding faster for the wireless subsector than it is for wireline. However, the country's wireline infrastructure is by no means complete, and Canadian wireline companies may find rich possibilities here.

Value-added wireless services such as SMS are also expanding rapidly, with 80 per cent of Chinese mobile subscribers using these services during 2005. Third-generation networks are coming as well, which will provide vast opportunities for Canadian firms with 3G expertise.

In general, Canadian companies with niche expertise in specialized applications, services and equipment may be an excellent fit for the Chinese market. Joint ventures may also be attractive; as of 2006, foreign companies can invest in up to 35 per cent of such a venture and this is expected to rise to 49 per cent 2007.

One further note: Beijing will host the 2008 Olympics and the city will need extensive telecommunications upgrades and additions. This may provide local opportunities for Canadian companies.

Some major Chinese telecommunications firms are:

- ▶ China Mobile www.chinamobile.com/english/
- ▶ China Netcom www.chinanetcom.com.cn/en/
- ▶ China Telecom www.chinatelecom.com.cn/en/
- ▶ China Unicom www.chinaunicom.com.hk

5.2.4 Kuwait (61)

Telecommunications services in Kuwait are partly liberalized. The government is the sole provider of wireline services, but there is competition in Internet and data services provision.

Mobile penetration is high, reaching 80 per cent during 2005. Wireless services are provided by the Mobile Telecommunications Company (MTC) and by Wataniya Telecom. Both companies are expanding by acquiring existing operators and new licences in the region, and new 3G technologies are being tested and rolled out.

Some major Kuwaiti telecommunications firms are:

- ▶ Arab Telecommunication Company www.arabtel.net
- ▶ MTC www.mtc.com.kw
- ▶ Ministry of Communications www.moc.kw/en.htm

5.2.5 Czech Republic (69)

The Czech telecom sector is growing steadily, helped along by the 2005 privatization of the former state-owned incumbent, Cesky Telecom. The market is highly competitive.

Cesky Telecom dominates public fixed-line telephone networks and services. In the wireless market, the company's cellular subsidiary, Eurotel Praha, and its competitor T-Mobile Czech Republic, are both key players. The country's mobile penetration rate was 99 per cent in 2005, so that segment of the market is saturated; however, three mobile operators have acquired 3G licenses, which means a growth market for advanced wireless applications. Other potential sales for Canadian telecoms may lie in equipment related to networks, wireless infrastructure, data services and voice services.

Some major Czech telecommunications firms are:

- ▶ Cesky Telecom www.telecom.cz
- ▶ Eurotel Praha www.eurotel.cz
- ▶ GTS Novera www.gtsnovera.cz
- ▶ T-Mobile Czech Republic www.t-mobile.cz
- ▶ Vodafone Czech Republic www.vodafone.cz

5.2.6 Poland (58)

Poland liberalized its telecommunications market in 2002 and places no restrictions on foreign investment. Telekomunikacja Polska S.A. (TPSA), the former state-owned incumbent, continues to dominate the wireline telecom market, controlling and maintaining most of the country's fixed-line telecommunications services. However, mobile and wireless growth is by far outstripping that of wireline, which has an annual growth rate of only a few per cent.

The wireless sector is extremely competitive and there is a growing demand for all kinds of wireless technologies. Poland remains the largest mobile market in Eastern Europe, with a penetration rate of about 60 per cent and very high growth rates. Infrastructure upgrades are ongoing, and Poland's telecoms are moving to introduce enhanced new services and are looking for data content for these services. To compete, fixed-line operators are seeking value-added services and are also expanding their capabilities for broadband access and data transmission. This applies as well to cable companies, which are building infrastructures to support voice and Internet access; there is also a growing demand for VoIP services.

Some major Polish telecommunications firms are:

- ▶ Telekomunikacja Polska S.A. www.tp.pl
- ▶ Netia SA www.netia.pl
- ▶ Telefonía Dialog www.telefonia.pilicka.net.pl
- ▶ Polska Telefonía Cyfrowa www.era.pl
- ▶ Polkomtel www.polkomtel.com.pl
- ▶ PTK Centertel www.idea.pl

5.2.7 Slovak Republic (57)

All telecommunication services in Slovakia have been liberalized since 1998. The country's dominant provider of wireline telecommunications is Slovak Telecom (ST), which owns and operates the nationwide network. ST also provides several other services including leased-line services, data network services, telex and telegraph services, and radio and TV broadcasting.

Slovakia is still a developing mobile market, with a penetration rate of around 80 per cent in 2005; 3G services were launched in 2004. Internet and broadband use is low but is expanding. Broadband Internet access is available in most parts of Slovakia, for the most part through ADSL.

Slovakia's biggest telecom customers are Slovak Telecom and the two mobile companies, Orange and T-mobile. Opportunities exist in wireless, Internet provider services, and wireline-based, alternative telecommunication services.

Some major Slovakian telecommunications firms are:

- ▶ Slovak Telecom www.telecom.sk
- ▶ Orange www.orange.sk
- ▶ T-mobile www.tmobile.sk

5.2.8 Mexico (53)

Mexico's wireline network density is relatively low, especially in rural areas, which suggests potential for growth. Telmex is the incumbent wireline carrier and, in spite of a liberalized market and growing competition, has a near monopoly of Mexico's wireline telecom services.

Mexico is the second most active mobile market in Latin America after Brazil, with a penetration rate of 36 per cent, and in 2005 this market was growing at well over 20 per cent annually. Mexico's four mobile operators are Telcel, Movistar, Iusacell and Unefon.

Canadian companies that have developed convergent solutions, wireless access technologies and wireless security products will find plenty of opportunities in Mexico. In general, areas of growing demand are likely to be mobile telephony, WiFi equipment and applications, VoIP equipment and applications, and hardware and software needed to support the growth of ADSL networks. International equipment manufacturers operating in Mexico include Alcatel, Ericsson, Lucent, Avaya, Panasonic, 3Com and Cisco.

Some major Mexican telecommunications firms are:

- ▶ Movistar www.movistar.com.mx
- ▶ Telcel www.telcel.com
- ▶ Telmex www.telmex.com.mx
- ▶ Axtel www.axtel.com.mx
- ▶ Avantel www.avantel.com.mx

5.2.9 Brazil

Brazil is Latin America's largest market for telecommunications equipment and services. Motorola, Nokia, Nortel and Cisco all manufacture equipment in Brazil, which strengthens the country's telecom infrastructure and increases its potential for growth.

Currently, almost all the expansion in the country's telecommunications sector is in wireless telephony. Fixed-line service is showing very little growth as new and existing subscribers migrate to mobile services. Government estimates suggest that there were about 80 million cell-phone users in the country at the end of 2005.

The government is beginning the rollout of 3G licenses in 2006, and there will be opportunities in this subsector as telecom companies move to satisfy the demand for 3G services. Broadband penetration remains below 10 per cent, but some investment in expansion is being made in this area. Possibilities for Canadian companies may therefore lie in broadband services and applications related to voice, data, video and audio. Other potential opportunities are telemedicine equipment, telecom-based security technologies and system integration services.

Some major Brazilian telecommunications firms are:

- ▶ Brasil Telecom www.brasiltelecom.com.br
- ▶ Embratel www.embratel.com.br
- ▶ Telemar www.telemar.com.br

5.2.10 India

India's telecommunications network is the fifth largest on the planet and its growth rate is the second highest in the world. The total number of subscribers is forecast to reach 250 million by the end of 2007, and the total value of the market in 2004 was about US\$6.7 billion. Bharat Sanchar Nigam Ltd is the state-owned operator and remains the largest Indian telecom company, although it lost its monopoly position in 2001.

For the Indian telecommunications system, wireless is clearly the wave of the future. The number of wireless subscribers alone almost doubled between 2004 and 2005, from 33 million to 62 million. This makes wireless the current major growth subsector, with more than half of all telephone subscribers using wireless connections. This trend is expected to continue, with a predicted growth rate of around 2.5 million new wireless subscribers per month in 2007.

For Canadian telecom exporters, opportunities exist for sales of antennas, transmitters, radio and TV broadcast equipment, cable television transmission and receiving equipment, network equipment and switching equipment, and LAN and WAN equipment. There are also niche opportunities for many types of software solutions, such as Internet access gateway applications.

Some major Indian telecommunications firms are:

- ▶ Bharat Sanchar Nigam www.bsnl.co.in
- ▶ Bharti TeleVentures www.bhartiairtel.in
- ▶ Mahanagar Telephone Nigam www.mtnl.net.in
- ▶ Videsh Sanchar Nigam www.vsnl.in
- ▶ Reliance Communications www.reliancecommunications.co.in

Supporting the Industry

6

6.1 EDC's key role in telecommunications exports

Since 1945, EDC has been helping Canadian companies reduce the financial risks of selling their goods and services outside Canada. For example, if a telecom company is dealing with a new customer and has concerns about the buyer's ability to pay, EDC can insure the sale so the firm will get its money even if the customer defaults.

EDC can also help a company improve its cash flow, because banks consider EDC insurance to be a guarantee of payment. And EDC can help companies obtain bonds, which guarantee to the customer that the specifics of the contract will be met – an assurance that can tip the competitive balance in the company's favour.

EDC in India

EDC is supporting an important contract for Nortel by providing US\$250 million in financing for a major wireless-infrastructure project being undertaken in India by Reliance Infocomm.

A wide range of financial services

EDC's major services include:

- ▶ Accounts Receivable Insurance to protect the company if a customer can't or won't pay.
- ▶ Contract Frustration Insurance to cover a company's risks on a single contract sale. (Accounts Receivable Insurance covers *all* a company's receivables under *all* contract sales).
- ▶ Performance Security Guarantees to free up the money a company would normally have to put aside to secure a bond with a bank. This could include bid bonds, advance payment bonds and performance bonds.
- ▶ Performance Security Insurance to protect the company if a customer cashes in a bond even when the seller has fulfilled the terms of the contract (this is called a "wrongful call").
- ▶ Political Risk Insurance to protect a company against political or economic upheavals in a market.
- ▶ Other financial solutions to assist Canadian exporters and importers of Canadian exports.
- ▶ Preshipment financing guarantees.
- ▶ Foreign buyer financing including lines of credit to purchasers of Canadian exporters.
- ▶ Corporate loan syndication on behalf of Canadian and foreign companies.
- ▶ Project Finance.

Visit www.edc.ca for more information.

Preshipment Financing Guarantee

While EDC doesn't provide direct financing, such as loans, to Canadian companies, it can still help with a company's cash flow. To do this, EDC provides a guarantee to the firm's bank or surety company, which gives the institutions the confidence they need to extend more credit to the company. This, in turn, means that the company can take on more business.

Help with bonding

A bond is a financial guarantee to a company's customer that the company will abide by the terms of the contract. EDC doesn't issue bonds directly to a company, but can work with a bank or surety company to arrange guarantees or insurance that will protect it.

Before issuing a bond, financial institutions will require companies to provide security by freezing cash in their account or restricting its line of credit. This protects the institution if the company fails to perform and if the customer calls the bond – that is, if the customer demands that the value of the bond be paid out.

EDC helps out here by guaranteeing to the bank or surety company that it will be reimbursed if a firm's customer demands that the bond be paid. This frees up the company's cash flow and, if the customer does call the bond, EDC will pay the bank or surety company so the company doesn't have to.

What will it cost?

EDC has several different types of insurance. Which one is best for a particular firm and how much it will cost depends on the company's needs. EDC will need to know about the goods or services the company is selling, the market it's shipping to and the payment terms the customer is offering. Given this information, EDC can provide an estimate, and then the company can submit an application for an exact quote. A company specifically interested in Accounts Receivable Insurance can apply online at www.edc.ca/ari.

Help with finding new markets and buyers

EDC can provide loans to a company's foreign customers to encourage them to buy Canadian goods and services. EDC does this in several ways, two of which are arranging lines of credit with foreign banks so they can lend money to local businesses, and setting up direct loans to a Canadian company's customer. More information about this is on the EDC web site at www.edc.ca/financing.

EDC has also developed a "how-to" guide called *Discover New Markets*, which outlines the six steps a company needs to take before it starts trying to sell to new markets. Free copies are available at www.edc.ca/newmarkets.

EDC in Hong Kong

EDC also provided approximately US\$100 million to Hong Kong's Hutchison Telecommunications International Limited (HTIL); this financing will support Canadian telecom exporters generally, one example being Nortel's sales to HTIL's operation in Vietnam.

EDC in Algeria

An EDC-backed deal will provide financing of US\$50 million, in support of Ericsson Canada, for part of a corporate facility for Wataniya Telecom Algérie.

EDC in Russia

EDC has signed a US\$10.5 million agreement with Russia's JSCB Promsvyazbank to support Nortel equipment exports to the Russian mobile operator SMARTS, the fourth-largest mobile communications company in that country. Elsewhere in Russia, Nortel is making inroads into both the wireless and wireline subsectors, which are growing quickly and are attracting substantial investment.

Assistance for specific markets

EDC's decisions about extending help in a particular market depends on the market and what a company wants to do there – some countries and sectors are inherently more risky than others. However, EDC's role is to help Canadian exporters sell their goods and services outside Canada, so if EDC can find a way to make it happen, it will. For more information about these and other questions, call EDC at 1-888-728-9974.

6.2 Government initiatives

Two recent initiatives have demonstrated the government's commitment to developing the international sales potential of Canada's telecommunications sector. In 2005, the Government of Canada, through the Communications Research Centre (CRC), signed an Memorandum of Cooperation with the Hong Kong Wireless Technology Industry Association (WTIA). This agreement will form a partnership that will provide researchers and small- and medium-sized companies from both Canada and China with access to testing facilities and new markets for technology transfer and licensing. It will also form the basis for future collaboration on research projects that will further advance the wireless communications sector.

Also in 2005, Canada signed an agreement through the CRC with the Indian government's Centre for Development of Telematics (C-DOT) to collaborate on the development of new wireless technologies, especially those suitable for bringing broadband wireless communications to rural and remote areas. Among these technologies is the CRC-developed Microwave-Light Organized Network (MILTON) intended as a low-cost, wireless "last-mile access solution". MILTON takes a broadband feed from a central fibre-optic cable and uses an antenna network to distribute wireless over an area of several square kilometres.

6.3 Sector-specific resources for telecom exporters

There are numerous sources of assistance that can be of particular relevance to telecommunications firms. These include sector-specific organizations, industry associations and trade events.

6.3.1 Information sources for telecom companies

- ▶ British Columbia Technology Industries Association (BCTIA)
www.bctia.org
- ▶ Canadian Trade Commissioner Service (Communications sector market reports)
www.infoexport.gc.ca/ie-en/SectorDetail.jsp?nid=574
- ▶ Canadian Wireless Telecommunications Association (CWTA)
www.cwta.ca
- ▶ Canadian Advanced Technology Alliance (CATAAlliance)
www.cata.ca
- ▶ Communications Research Centre Canada
www.crc.ca
- ▶ Canadian Innovation Centre
www.innovationcentre.ca

- ▶ Canadian Technology Network
www.ctn-rct.nrc-cnrc.gc.ca
- ▶ Club Telecom
www.club-telecom.qc.ca
- ▶ Communications Research Centre Canada
www.crc.ca
- ▶ Communications and Information Technology Ontario (CITO)
www.cito.ca
- ▶ Industry Canada: Information and Communication Technology
www.strategis.ic.gc.ca/epic/Internet/inict-tic.nsf/en/Home
- ▶ Information Technology Association of Canada (ITAC)
www.itac.ca
- ▶ International Institute of Telecommunications (IIT)
www.iitelecom.com
- ▶ National Research Council Institute for Information Technology
www.iit-iti.nrc-cnrc.gc.ca
- ▶ Ottawa Centre for Research and Innovation (OCRI)
www.ocri.ca
- ▶ Trade Team Canada Information and Communications Technologies
www.ttcinfotech.ic.gc.ca
- ▶ TRILabs
www.trilabs.ca
- ▶ Wireless Innovation Network of British Columbia
www.winbc.org
- ▶ WiTec Alberta
www.witec.ca

6.3.2 Telecommunications trade events

There are several excellent online sources of information about upcoming trade fairs, exhibitions and conferences for the IT and telecommunications sector.

- ▶ Industry Canada's Strategis web site maintains a list of upcoming events; refer to www.strategis.gc.ca/epic/Internet/inict-tic.nsf/en/h_it00008e.html.
- ▶ ITAC has a calendar of events at www.itac.ca/Events/Events_Main.htm
- ▶ CWTA maintains its own calendar at www.cwta.ca/CWTASite/english/eventscalendar.html.
- ▶ CanadaIT.com's calendar of events is accessible through the home page of their web site at www.canadait.com.
- ▶ CeBIT is the world's leading trade show for solutions, products and services from all areas of IT and telecommunications. Refer to www.cebit.de.
- ▶ TechWeb maintains a calendar of international IT events at www.techweb.com/calendar.
- ▶ The Ultimate Trade Show Resource at www2.tsnm.com lets you search around the world for events by specific industry and sector.

6.4 General resources for exporters

No matter what sector a company is in, successfully entering a foreign market requires a great deal of research, preparation and planning. If you're a newer exporter or are thinking about becoming an exporter, the organizations and resources listed below can help you find out what you need to know.

- ▶ **Canada Business** is a collaborative network of federal (and in some cases provincial) government services that help Canadian entrepreneurs and exporters build their companies. They're at www.canadabusiness.gc.ca, and you can call them at 1-888-576-4444.
- ▶ **The Canadian Trade Commissioner Service (CTCS)** provides services to Canadian businesses in Canada and abroad, including market research studies and country-specific reports. The Virtual Trade Commissioner, also available through the CTCS, is a personalized, web-based resource that will give you market information and leads specific to your business interests. You can register for the Virtual Trade Commissioner when you visit the CTCS web site at www.infoexport.gc.ca.
- ▶ **Canada's International Market Access Priorities**, available at www.dfait-maeci.gc.ca/tna-nac/cimap-en.asp, describes the federal government's priorities for improving Canadian access to foreign markets.
- ▶ **CanadExport**, at canadexport.gc.ca, is a free, online publication of International Trade Canada. It provides news about trade opportunities, export programs, trade fairs, business missions and more.
- ▶ **Foreign Affairs Canada** provides information about foreign affairs, foreign policy, travel assistance and passport services. They're at www.fac-aec.gc.ca.
- ▶ **Industry Canada** offers market reports as well as the Trade Data Online research tool. Refer to www.strategis.gc.ca.
- ▶ **International Trade Canada (ITCan)** provides information related to the Canadian economy and international trade. Refer to www.itcan-cican.gc.ca.
- ▶ **Team Canada Inc (TCI)**, at exportsource.ca, is a comprehensive online source of export-related information and resources; call 1-888-811-1119 to find out more.
- ▶ **Statistics Canada**, at www.statcan.ca, is a source for statistics on Canada's population, resources, economy, society and culture.
- ▶ For customs information, check with the Canada Border Services Agency at www.cbsa-asfc.gc.ca; for tax-related information, visit the Canada Revenue Agency at www.cra-arc.gc.ca. Team Canada Inc and Canada Business also provide resources to help you in these areas.
- ▶ **The U.S. Commercial Service**, at www.export.gov/comm_svc, has a range of research tools, including market reports and commercial guides related to world markets.



Canada's Telecommunications Sector at a Glance

The telecommunications industry is an important part of Canada's economy. More than 300 companies of all sizes are involved in equipment manufacturing alone, employing some 23,000 people. Canada's equipment exporters did well in 2005, with shipments increasing by 13.8 per cent over 2004 and reaching \$6.9 billion by year end – the strongest annual increase since 2000.

World figures for 2005 telecom equipment exports were not available at the time of writing; however, in 2004, according to UN Comtrade statistics, Canada was the world's 16th-largest telecom exporter – up from 18th in 2003 – and was responsible for about 1.5 per cent of the world's total telecom exports.

The charts on the following pages give an overview of Canada's telecommunications sector during the past five years. The figures clearly show the drastic declines caused by the global telecom crash in 2002-2003, and the recovery that began in late 2003 and is, happily, still going on.

7.1 Key subsectors

The Canadian telecom equipment sector can be seen in terms of four major categories: telephone equipment; radio, TV and wireless equipment; "other" communications equipment; and wire and cable. Table 2 shows the export share of each subsector since 2001.

Table 2. Subsector equipment exports to all countries (in thousands of dollars)

Industry Subsector	2001	2002	2003	2004	2005
Telephone Apparatus	5,114,502	3,863,697	3,126,170	3,397,162	3,888,264
Radio, TV and Wireless Communications Equipment	2,377,066	1,995,426	1,776,674	2,024,276	2,318,085
Other Communications Equipment	557,943	473,594	375,926	450,065	485,069
Wire and Cable	408,264	229,527	171,734	188,578	203,127
Total	8,457,774	6,562,244	5,450,503	6,060,080	6,894,545

Source: Industry Canada

Table 3 shows subsector exports as a percentage of total exports. One key point of interest is the way in which wireline (telephone apparatus) and wire/cable exports are falling, while wireless exports are rising. This reflects the global trend toward developing wireless communications in preference to wireline communications.

Table 3. Subsector exports as a percentage of total sector exports

Industry Subsector	2001	2002	2003	2004	2005
Telephone Apparatus	60.4%	58.9%	57.4%	56.1%	56.4%
Radio, TV and Wireless Communications Equipment	28.1%	30.4%	32.6%	33.4%	33.6%
Other Communications Equipment	6.6%	7.2%	6.9%	7.4%	7.0%
Wire and Cable	4.9%	3.5%	3.1%	3.1%	3.0%

Source: Industry Canada

Table 4 shows how revenue growth has fared since the sector's upturn began in late 2003. While total revenues have not climbed back to their pre-2000 levels, the rate of growth since 2003 has been encouragingly healthy.

**Table 4. Subsector export revenue growth, 2003-2005
(revenue figures in thousands of dollars)**

Industry Subsector	2003 Revenues	2004 Revenues	2005 Revenues	Percentage Growth 2003-2005
Telephone Apparatus	3,126,170	3,397,162	3,888,264	24.4%
Radio, TV and Wireless Communications Equipment	1,776,674	2,024,276	2,318,085	30.5%
Other Communications Equipment	375,926	450,065	485,069	29.0%
Wire and Cable	171,734	188,578	203,127	18.3%
Total	5,450,503	6,060,080	6,894,545	26.5%

Source: Industry Canada

7.2 Our biggest customers

Table 5 shows the 10 countries that have been our largest export customers since 2001.

**Table 5. Largest 10 purchasers of Canadian telecom equipment
(in thousands of dollars)**

Country	2001	2002	2003	2004	2005
United Kingdom	287,212	213,708	277,012	503,393	483,124
France	35,415	75,584	82,923	171,231	136,672
China	216,244	124,380	136,754	97,137	125,873
Japan	43,906	77,231	81,395	117,248	125,130
Germany	43,233	44,061	72,198	66,521	94,572
Australia	52,804	56,171	63,902	73,522	92,426
Mexico	62,311	21,965	22,807	38,264	87,238
Korea, South	65,685	69,316	66,789	72,429	73,636
Spain	6,242	22,053	25,653	24,140	68,501
Total	7,734,862	5,814,997	4,713,540	5,293,674	6,027,250

Source: Industry Canada

7.3 Our best market prospects: EDC's estimate

Table 5, above, identifies the countries that have been our largest export customers since 2000. Demands and needs are constantly changing, however, so markets that have been fruitful in the past don't necessarily hold the best potential for the future. In recognition of this, EDC employs a wide range of tools to help identify the most promising markets, including the Trade Opportunities Matrix (TOM) that was described at the beginning of Chapter 5.

Table 6 shows EDC's estimate of the best prospects among the developed countries, ranked from highest to lowest according to their scores from TOM analysis. This table gives a significantly better idea of market potential than do the simple export revenue figures in Table 5.

Table 6. TOM scores of the most promising developed markets (with recent performance in thousands of dollars)						
TOM Score	Country	2001	2002	2003	2004	2005
1	New Zealand	6,377	6,805	10,035	20,405	22,469
2	Finland	2,635	1,209	6,306	4,371	12,103
3	Sweden	3,015	4,951	8,523	9,966	14,857
4	Australia	52,804	56,171	63,902	73,522	92,426
5	Ireland	48,044	25,614	28,726	25,775	25,584
6	U.S.	6,921,810	5,110,528	3,884,106	4,129,790	4,740,077
7	Norway	1,561	1,606	5,787	6,618	14,185
8	Austria	12,825	16,949	7,850	11,373	11,194
9	Netherlands	33,884	41,511	25,107	35,604	45,084
10	Denmark	11,846	4,180	8,078	10,757	9,838
Total		7,094,801	5,269,523	4,048,420	4,328,180	4,987,816

Source: EDC

Table 7 is also based on TOM scores, but depicts the most promising emerging markets.

TOM Score	Country	2001	2002	2003	2004	2005
75	Chile	19,786	5,505	6,275	9,949	12,952
63	Hungary	9,012	11,476	5,409	5,191	6,235
62	China	216,244	124,380	136,754	97,137	125,873
61	Kuwait	1,122	2,015	1,952	1,672	10,350
59	Czech Republic	2,228	12,953	10,248	5,646	6,525
58	Poland	4,109	8,585	11,235	12,333	26,041
57	Slovak Republic	2,180	1,741	2,245	7,553	2,662
53	Mexico	62,311	21,965	22,807	38,264	87,238
53	Malaysia	4,703	12,812	15,493	13,567	9,696
52	Tunisia	137	239	2,806	4,486	4,099
Total		321,832	201,672	215,225	195,799	291,670

Source: EDC

7.4 Other indicators

Statistics about service exports in any sector are hard to come by, and the telecom sector is no exception. Table 8 represents EDC's estimate of these exports and their prospects for the next two years.

Year	Total exports	Percentage growth
2005	2,358,000	0.2%
2006 (forecast)	2,405,000	2.0%
2007 (forecast)	2,453,000	2.0%

Source: EDC

Foreign direct investment (FDI) figures are also difficult to establish. EDC's estimate for 2004 was that Canadian FDI for the communications sector stood at \$9.6 billion, for the electrical and electronic products sector at \$27.9 billion, and for the ICT sector at \$25 billion.

www.edc.ca