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**Information Technologies
and Telecommunications**

Canada's International Business Strategy

1996-1997



Team Canada - Equipe Canada

Canada's International Business Strategy

is made up of an **Overview** highlighting Canada's international business development priorities, and a series of **Industry Sector Strategies**, which include lists of planned international activities.

The following documents are available:

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| Overview | 14. Forest Industries |
| 1. Advanced Manufacturing Technologies | 15. Information Technologies and Telecommunications |
| 2. Aerospace and Defence | <i>Overview</i> |
| 3. Agriculture, Food and Beverages | <i>Telecommunications Equipment and Services</i> |
| 4. Arts and Cultural Industries | <i>Software Products, Computer Services and New Media</i> |
| 5. Automotive | <i>Geomatics</i> |
| 6. Bio-Industries | <i>Computers, Peripherals and Instrumentation</i> |
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For information on how to receive the Overview, or additional Industry Sector Strategies, please call: 1-800-267-8376.

All monetary figures in this document are expressed in Canadian dollars unless otherwise indicated.

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This chapter of Canada's International Business Strategy (CIBS) has been the subject of review and consultation by a broad cross-section of companies and associations in the information technologies and telecommunications (IT&T) industry, and feedback has been substantial. While many suggestions have been incorporated, more analytical and consultative work is required, particularly in the area of IT&T services, before a comprehensive strategy for this sector can be articulated. This section, therefore, provides a basis for discussion on priorities for government initiatives and support, with a view toward increasing international opportunities for Canadian IT&T companies.

Overview

The IT&T sector includes: telecommunications equipment and services; software products, computer services and new media; geomatics products; computers, peripherals and instrumentation; and electronic components.

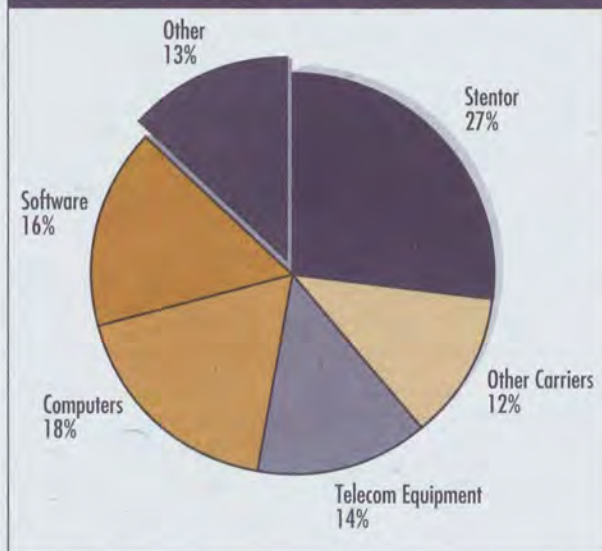
Canadian Position

IT&T is an important industry sector in Canada, with revenues of \$54.6 billion in 1994. The sector conducts 35 percent of industrial research and development (R&D) in Canada, and employs 308 000 people in some 15 000 firms across the

country. Roughly one quarter of total revenues in 1994, or \$16 billion, was derived from exports. Main destinations for Canada's IT&T exports in 1993 were the United States (77.5 percent), Europe (9.1 percent) and Asia (8.7 percent).

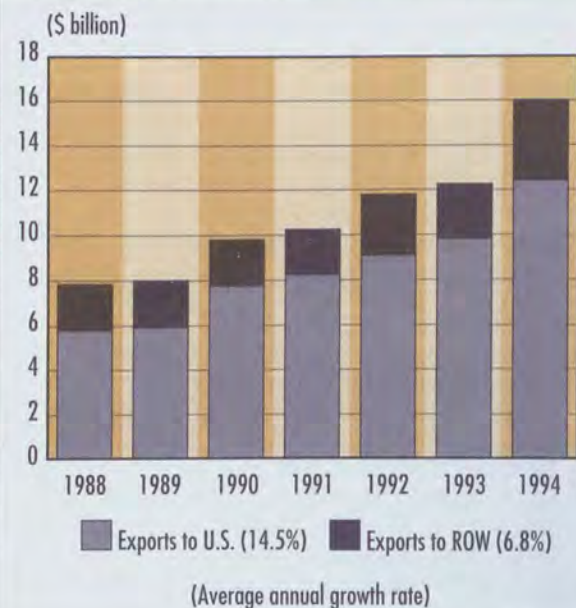
Competition in IT&T is fierce, both globally and at home. In 1993, imports made up 37 percent of the \$60.8-billion Canadian domestic market, leaving Canada with a \$10.6-billion trade deficit in this industry sector. Canada's relatively small trade surplus in telecommunications (\$195 million) was outweighed by major trade deficits in computers

Figure 1
Canadian IT&T Sector Revenues



Source: Statistics Canada, 1993

Figure 2
Canadian IT&T Exports to the U.S. vs. Rest of World



Source: Statistics Canada

and peripheral equipment (\$3.5 billion), electronic parts and components (\$3 billion) and consumer electronics (\$1.9 billion).

The United States is Canada's largest trade partner for IT&T; it was the destination of 77.5 percent of Canadian exports and the source of 60.8 percent of Canadian imports in 1993. The U.S. is also the primary market for Canadian companies seeking international investment partnerships through joint ventures, R&D consortia and equity investments. The dependence on the U.S. market has increased over the last five years, while Canada's position vis à vis other major markets has deteriorated. Trade percentages between Canada and the European Union (EU), Canada's second-largest trade partner, are declining. It is with Asia that Canada has the biggest IT&T trade imbalance; in 1993, Asia was the destination of 8.7 percent of Canada's IT&T exports but the source of 26 percent of imports.

International Environment

IT&T is the world's fastest-growing economic sector, and is expected to exceed \$3.2 trillion by the year 2000. Canada's market share is estimated at 3 percent. It is forecast that this sector will soon account for nearly \$1 of every \$6 of global gross national product (GNP). Currently, North America represents 47 percent of the world market and Europe 32 percent. In the Asia-Pacific region, which represents 18 percent of the world market, the use of IT&T is growing at 20 percent annually.

Increasingly, governments have embarked on deregulation, privatization and competition in their telecommunications sectors. Several countries have also undertaken to improve access to their telecommunications markets. By January 1998, the EU market for telecommunications infrastructure and services will be completely liberalized.

The recently concluded Uruguay Round of the General Agreement on Tariffs and Trade (GATT) included several agreements that will improve trade in the IT&T sector. The General Agreement on Trade in Services (GATS), for example, contains an annex on telecommunications that promises to facilitate trade in this important sector. Also, the Trade Related Aspects of Intellectual Property Rights (TRIPs) ensures the highest level of copyright protection for computer programs as well

as enforcement provisions to ensure compliance. However, concern for intellectual property protection remains a major impediment to investment in many otherwise promising markets.

There is immense potential in all IT&T sub-sectors for collaborative R&D, joint ventures and international alliances between Canadian and foreign companies. A case in point is the recent Canada/European Union Agreement for Scientific and Technological Co-operation, which is being used by Industry Canada (IC) and the Department of Foreign Affairs and International Trade (DFAIT) to promote international alliances between Canadian and European IT firms within the EU R&D framework programs. These alliances are seen as one way of gaining market access to Europe. Further, Canada is involved in several of the 11 information-highway projects announced in February 1995 at the G-7 Ministerial Conference on the Information Society.

Main Challenges

Key issues for IT&T trade continue to be restricted market access, standards and other technical barriers, rules of origin, protection of intellectual property rights, regulatory barriers and competition policy. Canada's growing IT&T global trade deficit, its increasing reliance on the U.S. market and the deterioration in market share in regions and countries outside North America are causes for concern. To compensate for foreign inflows of consumer electronics, computers, peripherals and horizontal software products, Canada's exports of leading-edge telecommunications equipment, geomatics solutions and software products must increase substantially.

In most subsectors, with the exception of telecommunications equipment, exporting small and medium-sized enterprises (SMEs) represent a narrow base within their respective industries. The number of SMEs that export and the diversification of existing export markets can be increased. In many otherwise promising markets, there are still considerable technical barriers to market access.

On the investment front, a stronger case needs to be made by governments and other industry players to attract the kind of foreign investment necessary for the sector's continued expansion in Canada.

Strategic Direction

The Government has established a National Sector Team (NST) to address the challenges resulting from the diverse needs of IT&T subsectors and to better co-ordinate the international business development efforts of Canadian companies, federal and provincial governments, and regional agencies and associations. Various means such as listservs and electronic conferences will be used by government in the coming year to improve information sharing.

To increase both the number of firms exporting and the volume of exports, Government programs and services will target SMEs that are ready to begin exporting as well as those that wish to expand into new markets. At the same time, the Government will continue to intervene on behalf of larger firms to improve market access in key foreign markets and regions. Information on investing in Canada and forming alliances with Canadian companies will be provided to prospective foreign investors or partners.

Government will focus its efforts on three IT&T subsectors identified as those in which government intervention abroad can make a significant difference: telecommunications equipment and services; software products and services; and geomatics.

For most IT&T subsectors, the United States remains the most attractive market because of size, geographic and cultural proximity, established relationships and the influence of U.S. media on IT&T buyers worldwide. Far from monolithic, the U.S. is made up of several sophisticated geographic markets, each calling for a different market strategy. The business-development efforts of the 12 or more Canadian trade officers in the U.S. with responsibility for the IT&T sector will be reviewed on a priority basis this year by the National Sector Team.

The identification of the causes of market share erosion in other markets will need to figure prominently in the next stage of this strategy. Government support can be grouped under four headings used to categorize the Government's strategic directions in 1996-97.

Market Access and Facilitation

- negotiating mutual recognition agreements (MRAs) for tests and certifications;

- continuing representation in international and regional trade agencies such as the World Trade Organization (WTO), the Asia-Pacific Economic Co-operation forum (APEC), the Inter-American Committee on Telecommunications (CITEL), and international standards bodies such as the International Telecommunications Union (ITU) and SPICE;

- participating in international or foreign technology programs (e.g. European Union, Canada-Japan technical co-operation);

- improving access to international financial institution (IFI) funding; and

- focussing and co-ordinating existing Government resources on a limited number of high potential IFI opportunities where industry is exercising leadership and collective commitment.

Strategic Brokering

- establishing strategic alliances with foreign IT&T organizations or associations and better liaison through such means as electronic bulletin boards (BBS);

- in collaboration with industry, creating IT&T consortia or technology partnering agreements;

- conducting "Canada only" IT&T events in target markets;

- brokering networking among IT&T organizations participating in international bids;

- continuing support for the Telecommunications Executive Management Institute of Canada (TEMIC); and

- highlighting Canada and Canadian IT&T companies as attractive investment destinations.

Market Intelligence

- conducting a comparative analysis of strategies and tactics used by successful IT&T companies; and

- publishing lists of contacts (government and industry associations).

Trade Support Services

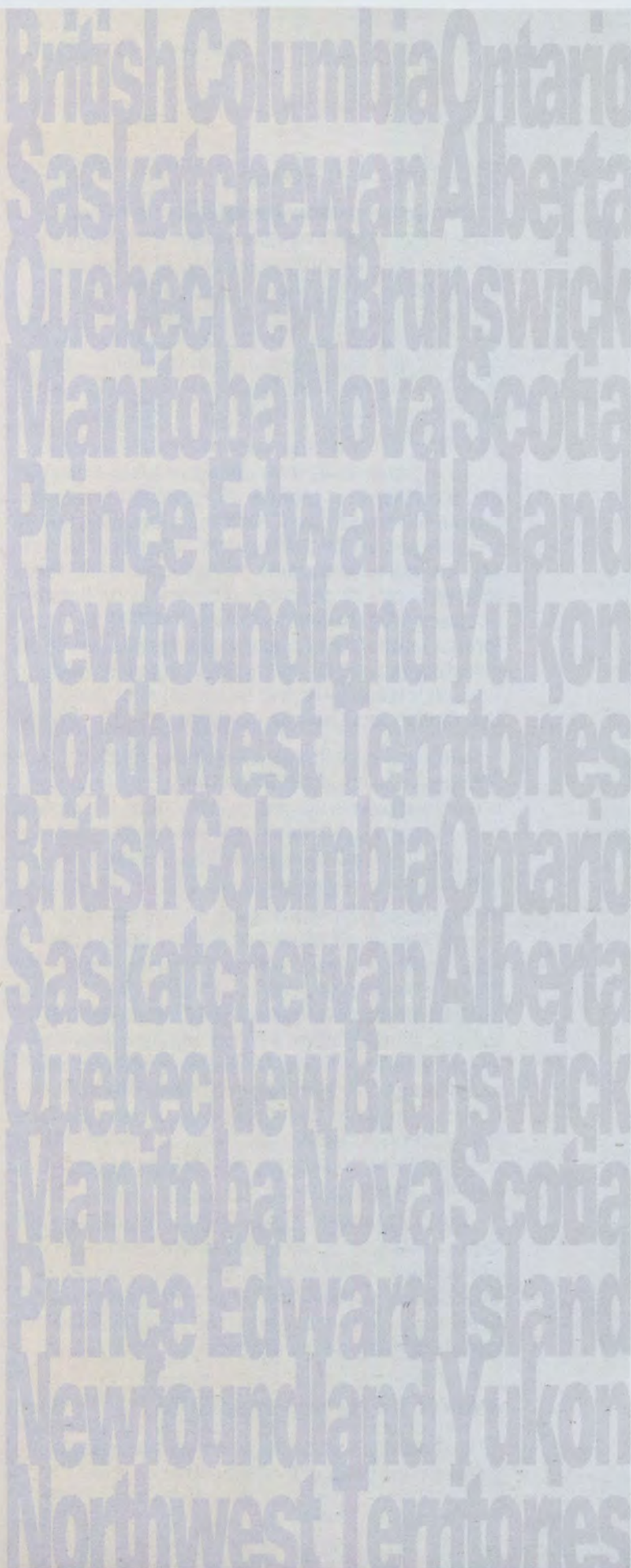
- providing training and professional export development programs that target the special needs of high-tech companies;

- ensuring availability of credible and experienced trade commissioner support for IT&T companies in key foreign markets; and
- publishing current information on Canadian IT&T capabilities for key foreign markets.

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The telecommunications equipment industry produces equipment used for the transmission, switching and distribution of voice, data and video information. Public network equipment, customer premises equipment and wireless equipment are key product categories used to profile this industry. The industry also manufactures equipment used in the production, broadcast and distribution of television and radio signals.

The Government acknowledges that telecommunications services are covered in a rudimentary fashion in this year's CIBS and is committed to undertaking the necessary planning and analysis to treat this increasingly important subsector in greater depth.

Canadian Position

Telecommunications Equipment

In 1993, manufacturing shipments for this industry were \$6.4 billion, representing about 3 percent of world shipments. In comparison, the Canadian domestic market of \$6.2 billion represents 3 percent of the world market. The resulting trade surplus of \$195 million compares with a trade deficit of \$295 million in 1989 and a surplus of \$716 million in 1984. Employment in 1993 was 45 925, down 3.2 percent from 1988. It is estimated that 31 companies account for over 90 percent of the industry's output and exports. Spending on

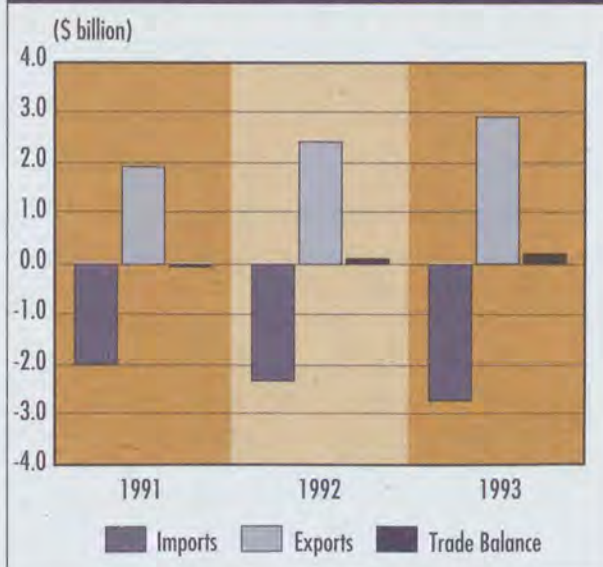
R&D was \$1.2 billion in 1993, and represented the single largest industrial R&D performer in Canada.

Canada has had a small trade surplus since 1992, which has grown each year, to reach \$195 million in 1993.

Concessionary financing is a critical factor in export performance in developing countries. In countries that have competing telecom equipment suppliers, increased Canadian exports depend on improved market accessibility and technological leadership.

In 1993, 62 percent of Canadian telecom exports (\$3.8 billion) went to the United States. The second- and third-largest export markets were China (\$478 million), and the United Kingdom (\$172 million). Export expansion is likely in the Asia-Pacific region, Latin America (Mexico, Brazil, Chile, Venezuela, Colombia), Eastern Europe and Africa.

Figure 1
Telecom Trade Balance from 1991 to 1993



Source: Statistics Canada

Telecommunications Services

Telecommunications services generated \$17.4 billion and provided 162 000 jobs in 1993. Canada's regulatory environment for telecommunications services is one of the most liberalized in the world, with both local and long-distance markets now open to competition. Major players are Stentor, a consortium of Canada's major provincial telephone companies, 50 independent telcos, a number of long-distance service providers (e.g. Unitel, Sprint Canada), one overseas carrier (Teleglobe), one satellite carrier (Telesat), two major cellular service providers (Rogers Cantel, Mobility Canada) and over 200 resellers.

Many Canadian service providers appear to be less aggressive than their counterparts in Europe, the U.S. and Asia (e.g. British Telecom, DBP,

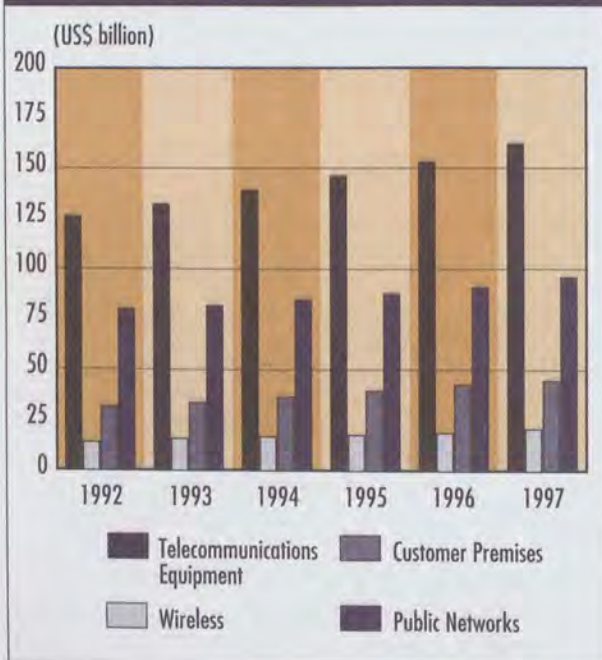
Telefonica, MCI, Sprint, AT&T, RBOCs, Korea Telecom) in seeking international growth opportunities and the consequent flow-through to equipment manufacturers. Teleglobe Canada is one Canadian service provider with an aggressive international strategy.

International Environment

The world's annual market for telecommunications equipment and services is estimated at \$1.5 trillion. All OECD countries are deregulating and modernizing their information infrastructures. Most developing countries have placed high priority on the development of telecommunications as a prerequisite to economic and social development. The International Finance Corporation and other private-sector lending/equity arms of the IFIs represent growing opportunities for both sectors. Last year, the World Bank approved projects in the telecommunications sector totalling US\$423 million.

Total world sales of telecommunications equipment in 1994 reached \$139 billion. Sales are expected to grow at 5 percent annually through 1997, to total almost \$162 billion. North

Figure 2a
World Market Size: Telecom Equipment —
Wireless, Customer Premises and Public Networks



Source: Decision Resources

Figure 2b
World Market Growth: Telecom Equipment —
Wireless, Customer Premises and Public Networks



Source: Decision Resources

America, Europe and Asia will continue to dominate world purchases in 1997, despite slower annual growth rates.

In 1994, mobile communications equipment was the fastest-growing sector of the telecommunications industry. It is estimated that by 1998, there will be 100 million cellular users worldwide, 42 percent of whom will be in the United States.

The global telecommunications industry is changing rapidly in response to a number of factors, including:

- fierce competition;
- deregulation of telecommunications services;
- growing user demands;
- rapid technological evolution and convergence;
- industry restructuring;
- emergence of regional trading blocs; and
- increased openness to foreign investment.

While these changes are taking place, certain market-access problems remain that call for resolution in government-to-government relations or through multilateral agencies such as the ITU, APEC and the Organization of American States (OAS).

Main Challenges

For telecommunications equipment, challenges include:

- improved market access and visibility for Canadian companies in key markets;
- effective partnerships with foreign firms;
- lack of export and investment readiness of SMEs;
- lack of useful information about market opportunities;
- providing support to knowledge-based SMEs (i.e. systems integrators); and
- trade barriers (e.g. lengthy approval processes) that inhibit market access, particularly in Asia.

Strategic Direction

The Canadian government will use a number of strategies to help Canadian firms, including: negotiation of MRAs for equipment certification; timely dissemination of market opportunities to Canadian companies; promotion of strategic partnerships; development and communication of tailored investment case material to foreign decision makers and promotion of specific investment opportunities; and tactical interventions on a government-to-government basis to promote Canadian interests abroad.

In the longer term, the Government will:

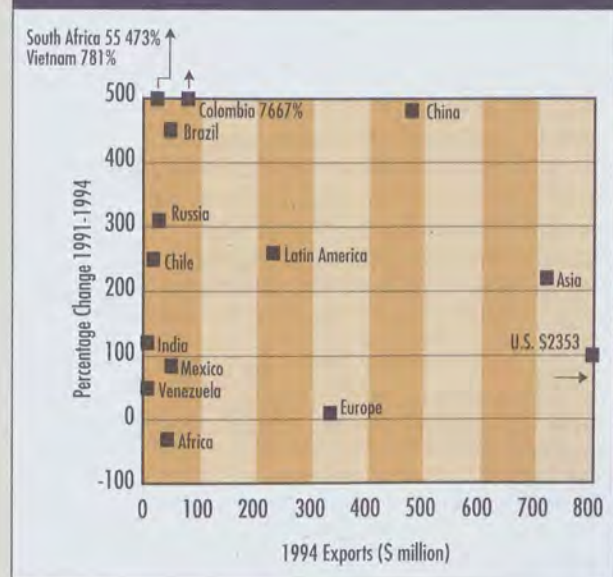
- seek ways to encourage Canadian service providers to export and invest in foreign markets;
- focus on developing longer term relationships with new carriers in foreign countries;
- investigate telecom financial deal structuring and collaboration between commercial lenders, EDC (Export Development Corporation) and IFIs in providing innovative financing packages;
- investigate and formulate a strategy for new markets, such as telemedicine, distance learning and broadband networks;
- study the issue of foreign acquisitions of growing Canadian SMEs; and
- examine Canada's potential in mobile and personal communication services (PCS) capabilities.

The goal is to achieve the following results:

- an increase in Canada's share of the worldwide telecom equipment market from 3.7 percent to 4 percent by the year 2000;
- an increase in Canada's trade surplus for telecom equipment from \$195 million to \$900 million by the year 2000; and
- a 5-percent increase in employment in the telecom equipment industry, to approximately 48 000, as a result of increased exports.

Figure 3 depicts priority countries for Canadian government intervention based on quantitative data and consultations between the private sector and government. It is not intended to suggest that opportunities and niche markets do not exist in other parts of the world.

Figure 3
Percentage Growth in Canadian Telecommunications Equipment Exports



Source: Statistics Canada

United States

The strategy for this market will be to maintain current market share and assist Canadian companies by:

- assessing the changes taking place in the U.S. market, and learning how to take advantage of opportunities in such emerging fields as PCS;

- disseminating timely information, in conjunction with trade associations, on U.S. regional market trends and opportunities for business with U.S. state and local governments, central services and independent agencies;
- implementing a telecom export outreach program in five regional clusters (Vancouver, Alberta, Southern Ontario, Ottawa and Montreal), starting with Ottawa and Montreal in the first year; and
- providing forums and partnering events for Canadian SMEs to meet with American investors, counterparts, agents and distributors.

Asia

The strategy for Asia will focus on doubling exports over the next three years, and increasing the number of Canadian firms exporting to the region by 25 percent over a two-year period.

Specifically, industry stakeholders will:

- explore opportunities for strategic alliances and partnerships between Canadian and Asian firms;
- continue involvement in various market access and trade liberalization steering groups of the APEC Telecommunications Working Group. Two goals are to adopt a MRA to eventually eliminate lengthy, expensive import approval procedures of telecommunications equipment, and to adopt an agreement on international value-added network (IVAN) access rules for the region;
- find means to offer more Canadian aid-in-kind to high-potential markets (e.g. tele-education or telemedicine) where foreign competition is intense; and
- continue using TEMIC training opportunities in Canada as a tool for promoting Canadian telecom expertise in Asia.

China

China is the largest potential telecommunications market in the world. In 1993, 12 million new telephone lines were installed, bringing the total to about 40 million. By the year 2000, China plans to have more than 100 million lines and 65 million telephones. In 1993, the central office switching market was valued at \$3 billion, and is expected to increase to \$5 billion by the year 2000.

China has imposed a ban on foreigners becoming involved in managing or holding equity in domestic telecommunications service providers, but market entry is possible through co-operation with Chinese equipment manufacturers in Sino-foreign joint ventures, or by selling goods under an import tariff.

Canadian exports and companies exporting to China are expected to double in the next five years.

Strategy will be:

- to encourage China to open up its value-added services market through bilateral and multilateral forums (e.g. APEC, WTO);
- to promote Canadian capabilities through seminars and missions that involve the Chinese Ministry of Posts and Telecommunications; and
- to influence and disseminate timely information on the evolving Chinese telecommunications regulatory and policy environment.

India

India has patterned its telecom regulatory regime on the Canadian model, and with the enormous growth in its telecommunications infrastructure, has the potential of becoming the "next China." Several Canadian telecom service providers, with Indian partners, are preparing bids to obtain operating licences in 21 territories.

In 1994, Canadian exports to India were \$2.7 million, and are expected to reach \$100 million by the year 2000.

Strategy for increasing market potential will be:

- to organize market awareness programs, ministerial visits, increased media exposure, twinning programs, seminars, workshops and sector-specific trade missions; and
- to intensify bilateral consultations and commercial relations with India.

Vietnam

Infrastructure development in the telecommunications sector has been targeted as a priority sector.

In collaboration with the private sector, the Canadian government seeks to triple telecom exports to Vietnam by the year 2000.

Strategy will be:

- to organize market awareness programs, ministerial visits, seminars, workshops and sector-specific trade missions; and
- to support Canadian companies participating in projects such as the Canada-Vietnam Information Technology Project, sponsored by the Canadian International Development Agency (CIDA), which aims at building regulatory bodies and institutions through the transfer of technology and production facilities.

Latin America

Priority countries in Latin America are listed below.

Country	Market Size 1993 (US\$ million)	Estimated Growth Annually (next 5 yr)	Import Market (US\$ million)
Mexico	\$2496	10%	\$1523
Chile	310	25%	260
Venezuela	1247	25%	764
Brazil	3000	20%	795
Colombia	300	7%	270

The goal is to double the number of Canadian companies exporting to Latin America by 1998, and establish key strategic alliances to help companies gain a foothold in Latin America.

Strategy will be:

- to ensure that the mutual recognition agreement of test data will also apply to Chile if it accedes to the North American Free Trade Agreement (NAFTA);
- to increase Canadian visibility in priority countries through enhanced inter-department and agency co-ordination with the ITU; and
- to work with local International Trade Centres, the Canadian Council for the Americas, and Canadian chambers of commerce to increase industry's awareness of telecom market opportunities in Latin America.

Eastern Europe and Russia

In this region, government intervention will focus on the telecommunications equipment sub-sector, in response to recently announced investments in Eastern Europe's telecommunications infrastructure.

By the year 2000, the Eastern European market should have a high degree of awareness of Canadian technology and expertise. In some cases, Canadian companies are expected to double or triple their sales to this region.

Strategy will be:

- to monitor reforms in the economic, regulatory and political environment of Eastern European countries, to identify investment opportunities resulting from privatization and divestiture of public-sector assets;
- to co-operate with industry associations to disseminate strategic market information on plans for telecommunications in the Czech Republic, Hungary, Poland, the Baltics, Ukraine, and Russia for the period 1995-2000;
- to gain greater access to major European sources of financing such as the European Bank for Reconstruction and Development (EBRD), the Poland Hungary Rehabilitation of the Economy, the World Bank, and Central European Telecommunications Investment Ltd.; and
- to develop an effective Canadian capabilities awareness program for Russia, building on past visits by senior Russian officials, implementation of the Canada/Russia Memorandum of Understanding (MOU) and the Canada/Russia Working Group to pursue opportunities such as Sovcanstar.

Western Europe

In the majority of European countries, telecommunications is one of the fastest-growing industries. The liberalization of European telecommunications services and infrastructure by 1998 should be one more incentive for Canadian equipment manufacturers to establish good contacts with telecom operators in the various countries.

Strategy will be:

- to take advantage of the recently signed EU-Canada S&T Agreement to improve long-term market access, and to complete MRA negotiations;
- to support participation in key trade shows;
- to encourage open discussions with European PTTs to facilitate interconnection of their broadband networks with Canada's National Test Network;
- to provide forums and partnering events for Canadian SMEs to meet with European investors, counterparts, agents and distributors;
- to provide market information and intelligence to export-ready Canadian companies;
- to support provincial/private initiatives for marketing strategy in European countries and participation in trade shows and other events; and
- to provide mechanisms which will permit long-term business relations with European companies.

Africa

Many African countries are now spending large amounts of money on their telecommunications infrastructures, creating excellent opportunities for Canadian companies. Exports are expected to increase dramatically in the short term, and Canadian firms may easily triple their sales over the next two to three years.

Strategy will be:

- to work closely with IFIs to help African administrations move from state-run monopolies to privatized operations;
- to use special trust funds at the World Bank to introduce Canadian policy and regulatory experts to help with the liberalization process in targeted countries;
- to forge alliances with funding organizations from other countries that have declared themselves ready to work with Canadian firms in Africa;
- to encourage them to participate in projects financed by international organizations such as Banque Africaine de Développement (BAfD);

- to organize briefings by World Bank and ITU officials to encourage Canadian companies to work in Africa; and
- to manage the ITU expert and executive placement portfolio, with the objective of inserting at least six Canadian experts in target countries.

South Africa

Telecommunications is one of South Africa's fastest-growing industries. Annual growth of 30 percent is fuelled in part by the skyrocketing growth in cellular telephone subscribers. Although the ratio of telephones to people is much higher in South Africa than in the rest of the continent, it stands at only 10 telephones per 100 population, presenting strong potential for growth in basic telephony. The backlog in telecommunications in the rest of Africa will also stimulate growth, as foreign-aid funding flows into countries such as Zambia, Zimbabwe and Mozambique for developing a basic telephone infrastructure. South Africa will be used as a base for some North American companies wishing to exploit this opportunity.

Strategy will be to help Canadian firms identify local players, either representatives or partners, and to deal with Telkom requirements and standards.

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The sector is made up of the software products industry, which develops software packages for sale to multiple clients, and the computer services industry, which includes: custom software development; systems integration; facilities management; digital colour pre-press and output services; digital imaging services; and information and translation services. Also covered in this section is the emerging new media sector, in which multi-media developers use a variety of digitally stored information to produce electronic commerce, business, learning, entertainment and health-care applications.

Although computer services are covered in only a rudimentary fashion in this year's CIBS, the Government is committed to undertaking the necessary planning, analysis and industry consultations to treat this increasingly important subsector in greater depth.

Canadian Position

The software products and computer services industry is characterized by a large number of SMEs, although employment revenues and export performance are dominated by a few large companies. The industry, which employs approximately 71 000, has enjoyed exceptionally rapid growth. Revenues of the top 100 software products companies grew 38 percent in 1994, to \$1.5 billion, while the top 50 service firms grew 25 percent, to \$3.9 billion.

The success of this industry is based on the quality of its products and services.

Industry Canada estimates that 560 firms are engaged in the production of multimedia applications, with employment of approximately 7300. This is a rapidly growing subsector, both domestically and internationally. While California is the acknowledged leader, Canada holds a strong position in animation, three-dimensional simulation and photo applications.

Canadian companies in the software products and computer services sector are outstanding export performers. The top 100 software products companies derived 62 percent of their revenues from exports. Many of these companies have also benefited from strategic alliances, primarily in distribution but also in product development. Service companies had foreign revenues of \$817 million, mostly from the four largest, SHL Systemhouse, Bell SYGMA, DMR and ISM.

The U.S. is the largest foreign market for Canada's software and new media industries.

International Environment

INPUT, a market research firm, estimates that the 1995 world software products and computer services market is \$436 billion. Canada has a 2-percent share of this market. INPUT forecasts growth at 11 percent annually over the next five years, with the fastest growth in the products business. The real export opportunities lie in the applications and systems software market, which at \$130 billion, is growing at 12 percent annually.

Most market segments are dominated by U.S. companies, although Canadians have established leading positions in such niche markets as graphics software, multimedia, communications, school administration, systems development, IT management methods and tools, and manufacturing. Given the dynamics of this industry, rapid market growth, rapid technological change and short product cycles, there are many opportunities for further growth. These opportunities are now restrained by the absence of intellectual property rights protection in many countries of the world.

Main Challenges

The main challenges for software companies include:

- addressing the problem of piracy;
- dealing with the lack of good marketing plans;
- ensuring timely access to strategic market information;

- identifying distributors in target markets;
- improving access to financing to maintain adequate international marketing/sales efforts and R&D;
- developing partnerships and strategic alliances abroad to accelerate market penetration;
- ensuring compliance with North American and international standards;
- developing applications that are culturally acceptable by foreign markets;
- positioning Canada for future growth in multi-lingual computing and digital-imaging services; and
- supporting marketing endeavours to export French-language software products and expertise throughout the Francophone world.

Strategic Direction

The Government's strategic efforts will be specifically directed toward the following markets.

United States (\$77 billion in revenues in 1995, 12-percent compound annual growth rate [CAGR])

The U.S. is the largest, most sophisticated market, and its users are not reluctant to adopt new products. Success here is the key to the world market for Canadian companies, which face the challenge of developing a marketing plan to reach target users, and identifying the best distribution channels.

Strategy will focus on nurturing new entrants, developing regional market positions or outlooks, and identifying distributors, value-added resellers (VARs), investors and specialized trade shows serving vertical markets.

Latin America (\$4.6 billion in revenues, 19-percent CAGR)

These are small, diverse but fast-growing markets that are characterized by problems with piracy and the challenge of multiple languages of commerce.

Strategy will focus on providing information on markets for sophisticated, high-value software products that can absorb the high cost of marketing (including localization), and are less susceptible to copying.

Asia-Pacific (\$13 billion in revenues, 14-percent CAGR)

This is a large, very fast growth market, but piracy is rife. Japan's shift from proprietary operating systems to DOS/Windows has created a \$7.3-billion market for those products, and future potential can justify the cost of localization. China is a potentially interesting market for large, sophisticated programs that cannot be easily copied.

Strategy in this region is identical to that in Latin America, with the exception of Japan and Australia, where strategy will reflect the U.S. model.

Western Europe (\$31.9 billion in revenues, 8-percent CAGR)

Europe, the largest software importer, represents an attractive market opportunity for Canadian software. Many well-known Canadian companies have been successful in Europe. Doing well in Europe requires visiting frequently, making good on commitments and ensuring that strong support is available to local customers. Europe also offers excellent potential for investments and strategic partnering.

Strategy will focus on nurturing new entrants, developing regional market positions or outlooks, developing partnership business relations, identifying distributors, VARs, investors and specialized trade shows serving vertical markets. In addition, strategic relationships with European-based companies will help Canadian companies to exploit new potential markets and niches that the software industry is identifying.

Rest of Europe, Africa, Middle East

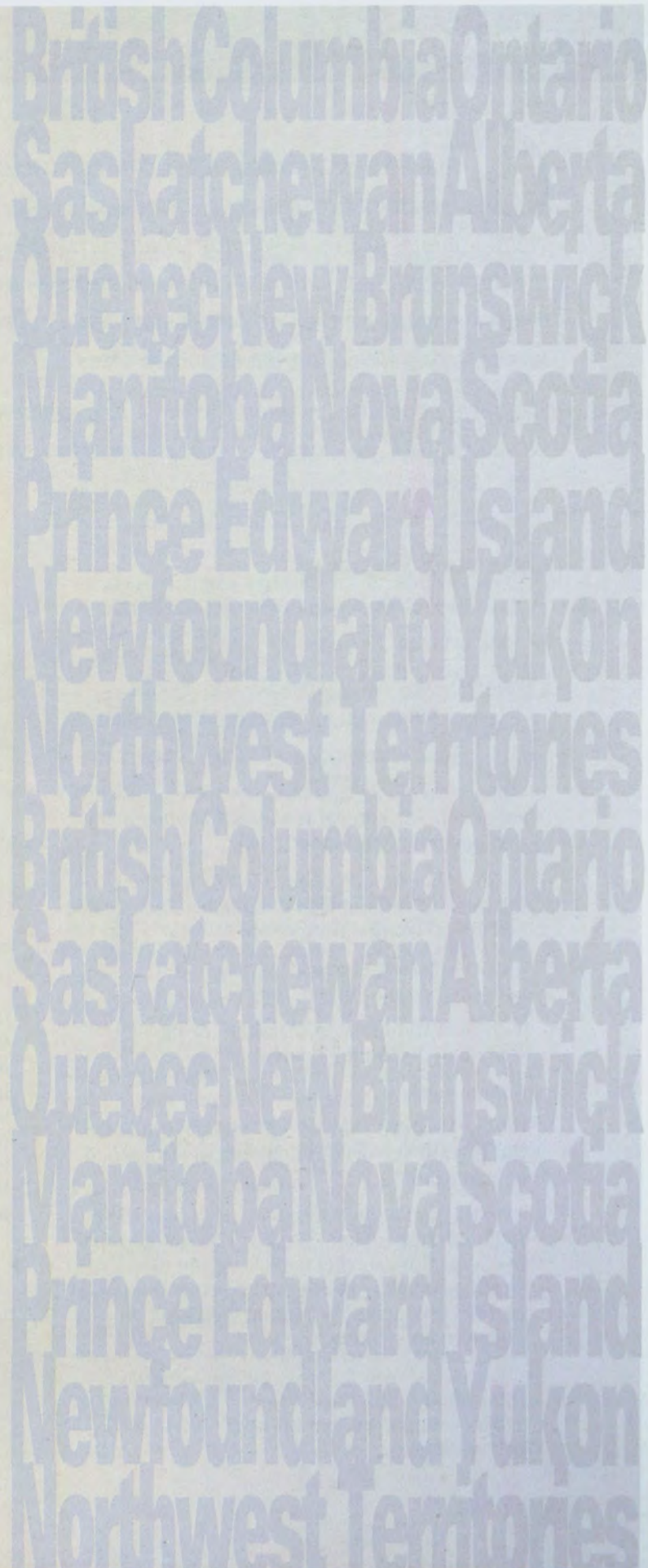
The rest of Europe is of little interest to most of the industry because piracy is endemic. Similarly, piracy, small markets and language problems in Africa and the Middle East make them less attractive, although South Africa is a possibility.

Strategy will focus on producing watching briefs for occasional opportunities to sell specialty packages.

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Internet: robert.speers@extott16.x400.gc.ca



Geomatics is a technology sector focussing on the acquisition, storage, analysis, dissemination and management of geographically referenced information. The principal domains of this subsector include: positioning and control surveys; topographic and thematic mapping; land and cadastral surveys; hydrographic surveys and nautical charting; remote sensing and image processing; and geographic information systems (GIS), including associated systems, products and services.

The term geomatics is used routinely in Canada and increasingly so in other countries, although "GIS" or "remote sensing" are also used to refer to the same industry.

Canadian Position

- 1500 firms, 85 percent of which are SMEs;
- Employment: 15 000;
- Annual sales: \$1 billion;
- Exports \$260 million; imports \$260 million;
- Strengths
 - pioneers of GIS and image analysis software, especially for natural resources management and environmental monitoring;
 - November launch of RADARSAT will fuel increase of value-added companies and provide strong international exposure in radar data;
 - world-class systems integration and geographic data production;
 - co-operation among members of the Canadian geomatics community.
- Major markets
 - U.S., Western Europe: particularly sales to the private sector, through joint ventures and subsidiaries;
 - Asia (the People's Republic of China [PRC], India, Vietnam, Malaysia, etc.): major geomatics acquisitions expected within the next five years, especially in infrastructure development and environmental programs (see Canada's Focus India strategy);
 - Latin America: market expected to grow from \$650 million in 1993 to \$2.5 billion in 1998 — opportunities are expected in land privatization;

– other promising markets – Central and Eastern Europe, Middle East, Commonwealth of Independent States (CIS): opportunities are expected in environmental monitoring and land privatization.

International Environment

- global market of \$10 billion, with 20-percent annual growth;
- major world suppliers: U.S./Canada 43 percent; Europe 31 percent; Far East 15 percent; rest of world 11 percent.

Trends

The three primary geomatics applications of natural resources management, infrastructure development and maintenance, and environmental management will continue to figure prominently in the world marketplace over the next five years. Significant increases in the proportion of geomatics in these areas will be fuelled by multimedia applications, virtual reality and improved user interfaces to make the technology more understandable to non-technical users.

The significant trends in technology include:

- introduction of low-cost, compact, high-capacity data storage and processing technology leading to exponential growth in desk-top systems;
- integration of heterogeneous data and implementation of distributed, seamless databases;
- development of integrated information management systems;
- introduction of multimedia user interfaces;

- increased adaptation of a common standard to exchange worldwide digital geographic data;
- widespread access to airborne and spaceborne remote-sensing imaging, which yield high-resolution data for operational applications; and
- introduction of low-cost, high-precision Global Positioning System (GPS) technology.

Worldwide trends in business, as expressed by business leaders, include:

- increased use of geographic data integrated with corporate management information systems;
- continuation of North America's position as the largest market;
- continuation of government's position as a dominant client group;
- continued rapid market growth in Europe and Asia;
- tremendous growth within the commercial business arena;
- formation of national or international consortia to arrange financing;
- establishment of public-private partnerships to implement comprehensive geomatics solutions that serve multiple agencies;
- continued impact of the high cost of populating databases on forecast rapid growth rates for GIS;
- ongoing demand for information over and above the demand for data; and
- significant opportunities offered by environmental applications.

Competition

The worldwide market is dominated by governments and public enterprise. Competition in traditional surveying and mapping comes from the United States, France, the United Kingdom, the Netherlands, the Scandinavian countries and, more recently, Japan, Australia and New Zealand. Increased competition will soon come from countries such as Korea, India and Poland, which offer low labour costs coupled with modern technology. Competition in emerging geomatics applications are entering the market as part of a strategy to develop broader products and services.

Main Challenges

There is a requirement for new financing alternatives, faster response to industry requirements and the establishment of viable structural relationships.

Other challenges include:

- obtaining reliable international market data;
- improved information dissemination;
- dealing with the high cost of international marketing, including collecting market intelligence and sustaining lengthy project-development cycles;
- unfamiliar market and business practices and cultural differences in global markets;
- harnessing and packaging Canadian expertise in data architecture for export by government, banks, insurance companies, telephone and cable companies;
- addressing the growing market for coastal zone information; and
- increasing international awareness of Canadian capabilities and expertise.

Strategic Direction

Co-ordinated partnerships between the public and private sectors will help to ensure strategic and focussed penetration into the global geomatics market, particularly in developing nations. Recent successes by Canadian industry-government consortia in winning geomatics projects in Mexico and Saudi Arabia are excellent examples of this approach. The recent launch of RADARSAT will provide Canada with strong credentials in the acquisition, processing and applications of space-acquired SAR (synthetic aperture radar) imagery.

Strategy will focus on:

- strengthening knowledge of geomatics in Canadian missions abroad (Natural Resources Canada [NRCan], DFAIT, Department of Fisheries and Oceans [DFO], Geomatics Industry Association of Canada [GIAC]);
- strengthening communication mechanisms to share market intelligence and information (DFAIT, NRCan, IC, DFO, GIAC, others);

- supporting initiatives to improve market penetration and increase Canada's share of global geomatics exports by 20 percent over the next two years (Geomatics Canada, others);
- promoting government-industry participation in international projects through appropriate business structures such as flexible business networks (NRCan, DFO, Canadian Commercial Corporation [CCC], EDC, DFAIT, GIAC); and
- increasing support for project financing and commercial export financing (DFAIT, CCC, EDC, CIDA, NRCan).

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- *GIS World Source Book 1995*. GIS World Inc., Fort Collins, CO.
- *Geomatics Market Opportunities in Latin America*. A Study Prepared for Industry Canada, Ottawa, 1993.
- *Competitive Strategy for the Canadian Geomatics Industry*. Geomatics Industry Competitiveness Working Group, Ottawa, 1993.
- *A Survey of Opportunities for the Canadian Geomatics Industry in the U.S. Federal and State Governments*. The Canadian Embassy, Washington, D.C., 1993.
- *Geomatics Industries: Industry Profile 1990-91*. Industry Canada, Ottawa, 1991.
- The 1996-97 Strategy Document on Space Sector.

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The computers and peripheral equipment industry manufactures a wide range of products used in various computing applications, including: computer systems (e.g. mainframes, personal computers, and work stations); peripheral equipment (e.g. printers, plotters and scanners); computer-storage equipment or devices (e.g. hard and floppy disk drives, optical disk drives and disk arrays); loaded computer-processor boards and unpacked computer subsystems (e.g. video and audio boards, process controller boards, local area network (LAN) interface boards, telecommunication network interface and other peripheral performance enhancing boards); and computer terminals (i.e. computers without a CPU microprocessor).

The instrumentation component encompasses manufacturers of virtually all types of measuring, sensing, recording and controlling devices used in most phases of commerce, industry, transportation, exploration and research. The products extend from simple bimetallic thermostats to technologically sophisticated optical/electronic, computer-based measuring apparatus.

Canadian Position

Computers and Peripherals

This sector is comprised of almost 300 manufacturing establishments, 113 of which employ over 10 people.

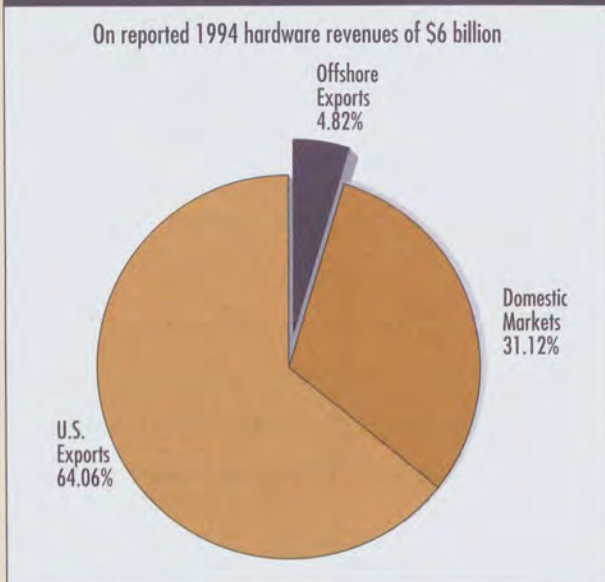
Canada's trade deficit in these products is gradually increasing as growing exports are offset by ever-larger imports.

A recent survey of the computer and peripheral equipment industry by Industry Canada can be summarized as follows:

- more than half of Canada's computer companies are very small (less than 10 employees);
- this sector is experiencing a current deficit of almost \$3.5 billion;
- the U.S. is the destination of 75 percent of exports, and approximately 65 percent of total exports are attributable to a handful of multinationals;
- SME shipments have grown from roughly 18 percent of total sector shipments in 1985 to 34 percent in 1991;
- approximately 60 percent of SMEs do not export, and those that do, export to unrelated firms;

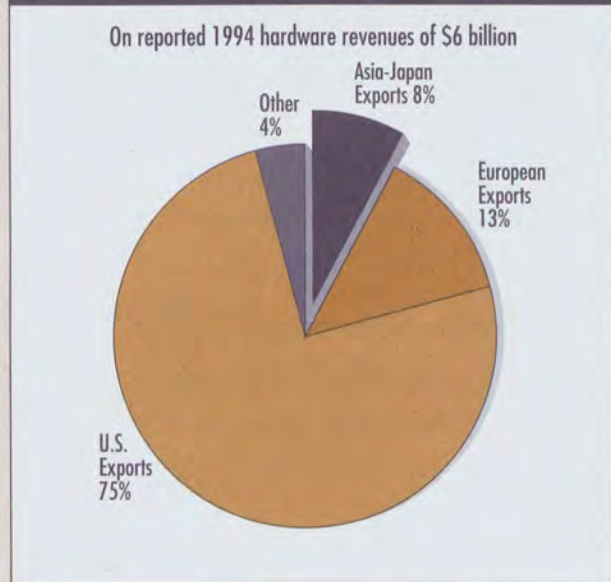
- 75 percent of multinational enterprise (MNE) trade is intra-firm;
- Canadian-controlled firms that are export-intensive enjoy a 67-percent higher profit margin than less export-oriented firms;
- primary reasons cited for not considering off-shore markets are that firms are still securing the Canadian and U.S. markets, the high cost of market investigation, and lack of funds;
- 57 percent of exporters use U.S.-based sales representatives, while the remainder have established sales offices;
- the most commonly used sales channels are direct to industrial buyers, value-added resellers, original equipment manufacturers (OEMs) and distributors;
- the most important foreign market information required is on local product-certification processes, local OEMs, competition, major distributors, conferences and trade shows, and local industry strengths; and
- preferred markets in which government may provide some assistance are Western Europe, the United States and the Asia-Pacific region.

Figure 1a
Destination of Canadian Manufactured Computers, Peripherals and Parts



Source: Statistics Canada
 Survey Industry Canada

Figure 1b
Destination of Canadian Exports of Computers, Peripherals and Parts



Source: Statistics Canada
 Survey Industry Canada

Instrumentation

- 362 Canadian companies where primary output is instrumentation;
- \$2.6 billion in shipments;
- employment over 18 000; and
- more than 1000 companies that manufacture one or more related products.

The U.S. is the destination of 75 percent of exports and the source of 71 percent of imports. Europe is second, receiving 13 percent of Canadian exports.

Canada's instrumentation industry is competitive in selected product areas such as geophysical and geological instrumentation, environmental monitoring and control systems, security and alarm systems, remote sensing, laser equipment, and spectroscopy, all of which have shown growth.

International Environment

- compounded annual growth rate of 6.2 percent for computer-equipment revenues, with intra-corporate trade dominating flows; and

- for personal computers, annual revenue growth is predicted to be at least 11 percent until 1997, at which point global shipments will be approximately \$100 billion.

The market estimates in Figure 2 include computer systems and peripheral equipment but not computer parts and components.

For computers and peripherals, the strategy will be:

- to increase the percentage of SMEs exporting to the U.S. from 40 percent to 65 percent by providing export-marketing services such as information products, trade show assistance, and on-site facilitation of meetings with potential buyers and distributors (IC, DFAIT); and
- to increase the number of companies (particularly SMEs) exporting to offshore markets (IC, DFAIT).

To better monitor the progress of Canada's international trade performance, efforts will be made to enhance the depth and usefulness of domestic and international computer trade analysis by:

Figure 2
The Foreign Computer Market, 1993 (US\$ million)

Market	Total Market	Import Market
U.S.	58 000	32 000
Japan	40 000	3 700
Germany	19 500	18 500
U.K.	14 144	13 000
France	11 346	5 356
Italy	7 950	4 110
Spain	4 800	4 600
Canada	4 257	3 883
Australia	3 780	2 692
Brazil	3 500	500
Korea	3 309	1 406
Switzerland	3 200	2 995
Netherlands	3 200	5 400
Taiwan	1 865	1 435
Sweden	1 724	1 566
Belgium	1 654	1 583
Austria	1 632	1 948
Denmark	1 450	1 400
Malaysia	1 300	1 134
China	1 300	800
Thailand	1 250	1 107
Hong Kong	1 238	1 067
Singapore	1 150	2 100
Finland	1 120	880
Ireland	973	587
Norway	850	794
India	835	250
Mexico	798	550
Portugal	766	750

Source: U.S. Department of Commerce

- improving the quality of international trade (HS) and industrial standards classification (SIC) data;
- continuing to assess the competitiveness of the domestic computer equipment industry;

- segmenting the international trade contribution of MNEs and SMEs; and
- analysing foreign market trade penetration.

Progress will be measured through regular monitoring of sector trade flows rather than by trying to evaluate the successes of individual firms' investigatory missions. Companies can contribute to the plan and influence government support by providing feedback to foreign missions on the calibre and capabilities of different foreign trade shows, distribution channels and agents.

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Electronic components include printed circuit boards, connectors, capacitors, resistors, switches, relays, transformers, semiconductors and a number of electronic components not elsewhere classified. They are essentially the building blocks of the electronics industry, such that demand is a function of sales in application markets like telecommunications, computers, consumer electronics, defence products, automotive and medical products.

Canadian Position

The component industry is a dynamic, export-oriented sector comprising approximately 300 companies and employing some 17 000 people. Canadian production stands at about \$3.85 billion, approximately 80 percent of which is exported.

Canada currently imports about \$5.5 billion worth of electronic components, 85 percent of which comes from the United States. Other suppliers include Japan, Korea, Taiwan, Hong Kong, China and Germany.

Canada's industry is extremely successful worldwide in higher-end electronic components, but Japanese and U.S. competition is fierce. In less-sophisticated products, Canada cannot compete with countries such as Mexico, China, Singapore, Korea and Taiwan.

Canadian strengths in electronic components are concentrated in the following areas.

Printed Circuit Boards

In 1994, exports were \$614 million and imports were \$925 million. About 40 Canadian companies are producing printed circuit boards, with the top five supplying over 80 percent of the market with 1994 sales of about \$450 million.

Semiconductors

In 1994, exports were almost \$2 billion and imports were \$6 billion. The global market is worth about US\$70 billion. Nortel's micro-electronics operations supply the in-house needs of both parent and subsidiary companies. MITEL's production is for both internal use and commercial markets. Gennum Corporation operates the only bipolar silicon fabrication facility in Canada. C-MAC is also an important player. The rest of the

Canadian industry is made up of approximately 30 smaller companies specializing in niche products or design and test services.

Capacitors

In 1994, exports of capacitors were \$24 million and imports were \$184 million. Major applications for chip capacitors include products such as telephones, computers, video cameras, televisions and automotive products.

Resistors

In 1994, exports of resistor products were \$7 million and imports were \$98 million.

Connectors

In 1994, exports of connectors were \$387 million and imports were \$1.6 billion. This is a growing niche area for Canadian manufacturers, with strong prospects in fibre-optic connectors, followed by printed circuit and special purpose connectors.

Magnetics

In 1994, exports of products such as electrical transformers, static converters and inductors were \$431 million, with imports of \$685 million. Many Canadian manufacturers specialize in power supplies for computers, telecommunications equipment and various other OEM products, and several export switch-mode supplies.

International Environment

The electronic components industry is expected to grow at an annual rate of 8 percent to 12 percent through the late 1990s, fuelled mainly by growth in the computer, communications equipment, con-

sumer electronics and automotive sectors. Today's customers demand higher performance, greater reliability and continued miniaturization in all new products — at less and less cost. Worldwide buying patterns for components are based on technological superiority, cost, delivery and reliability. Worldwide production costs vary according to costs for labour, material, capital, regulatory enforcement for worker safety, and environmental issues. To remain competitive in the global market, Canadian manufacturers must pay close attention to these variables.

Since 1994, Canadian component suppliers have benefited from the implementation of the NAFTA, which provides preferential tariff treatment for all "originating" North American goods traded between Canada, the United States and Mexico. Rules of origin for telecommunications equipment should ensure that more electronic contract assembly work is done in North America and, in turn, more components are purchased in North America.

Main Challenges

Challenges include:

- overcoming fierce international competition for attracting investments in chip fabrication facilities on the national territory;
- gaining access to leading-edge technologies, sophisticated process equipment and foreign silicon foundries;
- retaining highly qualified engineers and marketers;
- maintaining close working relationships with clients; and
- forming partnerships and alliances to manufacture and market products and services that address distinct market opportunities, particularly where systems integration is required.

Strategic Direction

To help Canadian companies succeed internationally, industry players' activity will be directed toward:

- convincing foreign investors to build chip fabrication facilities in Canada;

- continuing to focus first on the U.S. market and second on the European and Mexican markets for electronic component exports;
- continuing to support and work with the Strategic Microelectronics Consortium (SMC), a non-profit organization that was established to help the Canadian micro-electronics industry achieve sales greater than \$1 billion by the year 2001; and
- encouraging the continuation of supplier-development and partnership-assistance services of the Information Technology Association of Canada (ITAC).

References

Capability guides featuring member companies are available from Industry Canada.

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INFORMATION TECHNOLOGIES AND TELECOMMUNICATIONS

Activity	Date	Location	Dept.	Contact
Africa and the Middle East				
Strategic Partnering	Ongoing	Riyadh	NRCan	613-996-2810
Globe Synthetic Aperture Radar (SAR) Program: Workshop	01-Apr-96	Amman	NRCan	613-947-1227
Remote Sensing Application Symposium	01-Apr-96	Riyadh	NRCan	613-995-9941
Market Intelligence and Information Report Update	01-Apr-96	Johannesburg	DFAIT	613-944-6590
Geomatics International Conference: Mission from Saudi Arabia	26-May-96	Ottawa	DFAIT	613-944-5984
Citelcom in Côte d'Ivoire: Mission	27-May-96	Abidjan	DFAIT	613-944-6579
Technology Mission from Morocco	17-Jun-96	Montreal/Ottawa/ Toronto	DFAIT	613-944-0396
East African Computer and Telecommunication Show: Info Booth	14-Jul-96	Nairobi	DFAIT	613-944-6586
Softworld '96: Mission from South Africa	12-Sep-96	Halifax	DFAIT	613-944-6590
Telecommunications/High Technology Mission	10-Oct-96	Cairo	DFAIT	613-944-6994
Tunisia Telecom: Info Booth	20-Oct-96	Tunis	DFAIT	613-944-8124
Intercom '97: Mission from Morocco	20-Feb-97	Vancouver	DFAIT	613-944-0396
Intercom '97: Mission from Nigeria	20-Feb-97	Vancouver	DFAIT	613-944-6579
Intercom '97: Mission from Saudi Arabia	20-Feb-97	Vancouver	DFAIT	613-944-5984
Intercom '97: Mission from South Africa	20-Feb-97	Vancouver	DFAIT	613-944-6590
CeBIT '97: Mission from Egypt	06-Mar-97	Hannover	DFAIT	613-944-6994
Telkom '97: Info Booth	15-Mar-97	Johannesburg	DFAIT	613-944-6590
Asia-Pacific South				
Geographic Information System: Strategic Partnering	Ongoing	Bangkok	NRCan	613-996-2810
Environmental Applications of Geomatics in Asia: Workshop	01-Apr-96	TBD	NRCan	613-996-7644
Information Technologies Market Studies	01-Apr-96	Jakarta	DFAIT	613-992-0959
Geographic Information System (GIS) Software Market Study	01-May-96	Bangkok	DFAIT	613-995-7662
SIIM '96: Mission from New Zealand	01-Jun-96	Toronto	DFAIT	613-996-4309
CommunicAsia/BroadcastAsia '96: Mission	04-Jun-96	Singapore	IC	604-666-1407
CommunicAsia: Info Booth	04-Jun-96	Singapore	DFAIT	613-996-5824
Geomatics International Conference: Mission from Thailand	11-Jun-96	Ottawa	DFAIT	613-995-7662
APEC Telecommunications Ministers Meeting: Mission	01-Sep-96	Australia	IC	613-991-4903
Telecommunications Market Study Update	01-Sep-96	Bangkok	DFAIT	613-995-7662
Canadian Telecommunications Symposium	16-Oct-96	Bangkok	DFAIT	613-995-7552
Remote Sensing Conference	01-Nov-96	Kuala Lumpur	NRCan	613-947-1214

Note: Dates and locations are subject to change.

Activity	Date	Location	Dept.	Contact
Telecom Vietnam '96: Info Booth	03-Dec-96	Ho Chi Minh City	DFAIT	613-995-8744
Intercom '97: Mission from Australia	01-Feb-97	Vancouver	DFAIT	613-995-7652
Intercom '97: Mission from New Zealand	10-Feb-97	Vancouver	DFAIT	613-996-4309
High Technology Catalogue Solo Show	10-Feb-97	Haiphong/Danang	DFAIT	613-995-8744

Central/Eastern Europe and the Commonwealth of Independent States

Telecommunications Mission	14-Apr-96	Warsaw/Poznan	DFAIT	613-996-7107
Informatics NEXOS Mission to Eastern Europe	01-Sep-96	Budapest/ Prague/Warsaw	DFAIT	613-996-7107
Softworld '96: Mission from Hungary	15-Sep-96	Halifax	DFAIT	613-995-6435
Softworld '96: Mission from Poland	15-Sep-96	Halifax	DFAIT	613-995-6435
Intercom '97: Mission from Poland	21-Feb-97	Vancouver	IC	613-990-4216

East Asia

Rural Telecommunications Seminar	01-Apr-96	Beijing	IC	613-990-4232
Financing Seminar	01-Apr-96	Beijing	IC	613-990-4232
Spectrum Management Seminar on Wireless Technologies	01-Apr-96	Beijing	IC	613-990-4232
Data Communications: Mission to China	01-Apr-96	Beijing	IC	613-990-4232
Golden Projects Market Study	01-Apr-96	China	DFAIT	613-996-6987
Market Intelligence and Information Service Exercise	01-Apr-96	Seoul	DFAIT	613-995-8744
Remote Sensing/GIS Market Study	01-Apr-96	Beijing	DFAIT	613-996-6987
Geomatics Strategic Alliances Seminar	22-Apr-96	Seoul	DFAIT	613-995-8744
Telecommunications Mission from Pakistan	22-Apr-96	Vancouver/Toronto/ Montreal	DFAIT	613-992-0952
Computer '96 : Info Booth	01-May-96	Hong Kong	DFAIT	613-995-8606
Computer Telephony Integration (CTI) Partnering	01-May-96	Hong Kong	IC	613-954-3187
Geomatics Mission from Korea	01-May-96	Vancouver/Toronto/ Montreal	DFAIT	613-995-8744
Information Highway/Multimedia Market Study	01-May-96	Seoul	DFAIT	613-995-8744
Telecommunications Market Profile	01-May-96	Hong Kong/ Southern China	DFAIT	613-996-2463
CATA Globe Runner Conference: Joint Venture Mission from Taiwan	06-May-96	Toronto	DFAIT	613-995-8744
Computer Integration: Mission to China	14-May-96	Beijing/Shanghai	DFAIT	613-995-6962
Computex Computer Show: Info Booth	05-Jun-96	Taipei	DFAIT	613-997-8744
APEC Working Group on Telecommunications Meeting: Mission	01-Jul-96	Taipei	IC	613-991-4903
Instrumentation Industry Study	01-Jul-96	Seoul	DFAIT	613-995-8744
Computer Application Show: Info Booth	29-Jul-96	Taipei	DFAIT	613-995-8744

Activity	Date	Location	Dept.	Contact
Telecom Show: Info Booth	01-Aug-96	Taipei	DFAIT	613-995-8744
Softworld '96: Mission from Hong Kong	16-Sep-96	Halifax	DFAIT	613-995-8606
Softworld '96: Mission from South Korea	16-Sep-96	Halifax	DFAIT	613-995-8744
Softworld '96: Mission from the Philippines	16-Sep-96	Halifax	DFAIT	613-995-7659
Electronics Show: Info Booth	01-Oct-96	Taipei	DFAIT	613-995-8744
Communications India: Info Booth	22-Oct-96	New Delhi	DFAIT	613-996-5903
Telecommunications Mission	31-Oct-96	Colombo	DFAIT	613-992-0952
Environmental Applications of Geomatics: Workshop	01-Nov-96	New Delhi	NRCan	613-996-7644
Expocomm '96 in China: Info Booth	05-Nov-96	Beijing	DFAIT	613-996-6987
Broadcast, Cable and Satellite Show: Info Booth	06-Dec-96	New Delhi	DFAIT	613-996-5903
Satellite Market Study	01-Jan-97	Taipei	DFAIT	613-995-8744
Intercom '97: Mission from Taiwan	01-Feb-97	Vancouver	DFAIT	613-995-8744
Taipei Electronics Spring Show: Info Booth	20-Feb-97	Taipei	DFAIT	613-995-8744
Information Highway Mission to East Asia	01-Mar-97	Seoul	DFAIT	613-995-8744
Catalogue Shows: Promotion	03-Mar-97	Calcutta/Madras/ Hyderabad	DFAIT	613-996-5903

Japan

Canada-Japan Telecommunications Exchange Seminars	01-Feb-97	TBD	DFAIT	613-996-2460
Telecommunications Media Mission from Japan	01-Sep-97	Ontario/Quebec/B.C.	DFAIT	613-996-2460

Latin America and the Caribbean

Atlantic Geomatics Mission	01-Apr-96	Mexico City/ Monterrey	IC	506-851-6421
Hardware/Software Market Report	01-Apr-96	São Paulo	DFAIT	613-996-5549
Geomatics Mission	01-Apr-96	Lima	DFAIT	613-996-4199
IT Sector Market Study to Identify Partners	01-Apr-96	Buenos Aires	DFAIT	613-996-5549
Latin America Geomatics Applications Seminar	01-Apr-96	TBD	IC	613-992-1094
TEMIC Courses: Mission from Chile	01-Apr-96	Chile TBD	DFAIT	613-996-4199
Geographic Information System (GIS): Mission from Mexico	18-May-96	Ottawa/Calgary/ Vancouver	DFAIT	613-995-0460
Comexpo '96: Mission	20-May-96	Caracas	DFAIT	613-996-5548
America's Telecom '96 Conference: National Stand	01-Jun-96	Rio de Janeiro	DFAIT	613-996-5358
Softel '96: National Stand	10-Jul-96	Santiago	DFAIT	613-996-4199
Softworld '96: Mission from Venezuela	10-Jul-96	Toronto	DFAIT	613-996-5548
COMSOC: Info Booth	10-Aug-96	San José	DFAIT	613-996-6129
FENASOFT '96: Mission	01-Sep-96	São Paulo	DFAIT	613-996-5548
Softworld '96: Mission from Argentina	01-Sep-96	Halifax	DFAIT	613-996-5549

Activity	Date	Location	Dept.	Contact
COMDEX/Sucesu São Paulo '96: Mission	10-Sep-96	São Paulo	DFAIT	613-996-5549
Telexpo/Compuexpo: Info Booth	10-Oct-96	Bogota	DFAIT	613-996-5548
CompuExpo: Info Booth	01-Jan-97	Guadalajara	DFAIT	613-995-0460
COMDEX: Info Booth and Mission	26-Feb-97	Mexico City	DFAIT	613-995-0460
Intercom '97: Mission from Brazil	15-Mar-97	Vancouver	DFAIT	613-996-5549
Telexpo '96 in Brazil: Mission	27-Mar-97	São Paulo	DFAIT	613-996-5549
Telecommunications Market Report	01-Apr-97	São Paulo	DFAIT	613-996-5549
Technology/Technotron: National Stand	01-Apr-97	Lima	DFAIT	613-996-4199

Multiple Markets

Canadian Participation in G-7 Pilot Projects: Strategic Partnering	Ongoing	Ottawa	IC	613-954-3289
Information Highway Advisory Council: Strategic Partnering	Ongoing	Ottawa	IC	613-954-3289
Internet International Business Conference	Ongoing	Ottawa	IC	613-990-4096
National Spatial Data Infrastructure (NSDI): Technology Development	Ongoing	Ottawa	NRCan	613-996-2810
COMDEX '96: New Brunswick Software Pavilion	TBD	Toronto	N.B.	506-444-5265
Canadian Multimedia Companies Capabilities on CD-ROM	01-Apr-96	Ottawa	IC	613-941-5245
Information Technologies Strategic Alliance Report	01-Apr-96	Ottawa	DFAIT	613-995-0796
Key Software Markets: Studies	01-Apr-96	Ottawa	IC	613-954-3294
Reasons to Invest in Multimedia: Promotion	01-Apr-96	TBD	DFAIT	613-995-0796
G-7 Conference on the Information Society: Mission	01-May-96	TBD	IC	613-990-4112
CATA Globe Runner Conference: Strategic Partnering	06-May-96	Toronto	IC	613-990-4096
Geomatics International Conference	26-May-96	Ottawa	IC	613-996-0441
TEMIC Courses: Incoming Visitors	01-Jun-96	Montreal/Ottawa/ Vancouver	IC	613-991-4903
INET '96: International Internet Conference	25-Jun-96	Montreal	IC	613-954-3289
Ontario Software Showcase: Incoming Buyers	01-Sep-96	Toronto	IC	613-954-3294
Softworld '96: Strategic Partnering	15-Sep-96	Halifax	IC	613-954-3294
Alliances '96: Trade Fair	01-Nov-96	Montreal	IC	613-990-4096
Intercom '97: Info Booth	24-Feb-97	Vancouver	IC	604-666-1407

United States

Canadian Technology Network: Speaker Series	01-Apr-96	Detroit	DFAIT	613-944-9475
Export Successes to the U.S. Case Studies: Report	01-Apr-96	Vancouver	DFAIT	613-944-9440
Geomatics Market Study/Directory	01-Apr-96	Boston	DFAIT	613-944-6576
Government Resources Market Intelligence Study	01-Apr-96	Washington, D.C.	DFAIT	613-944-8821
1996/97 Public Sector Informatics Market Study	01-Apr-96	Washington, D.C.	DFAIT	613-944-8821
U.S. Mid-Atlantic Telecommunications Market Study	01-Apr-96	Washington, D.C.	DFAIT	613-944-6576

Activity	Date	Location	Dept.	Contact
Multimedia Mission from the U.S.	01-Apr-96	Vancouver	DFAIT	613-944-9475
Multimedia Partnering Opportunities Workshops	01-Apr-96	Vancouver/Calgary	DFAIT	613-944-9475
New Media Newsletter	01-Apr-96	New York/ San Francisco	DFAIT	613-944-9475
Ohio/Indiana Technology Transfer Study	01-Apr-96	Detroit	DFAIT	613-944-9475
Software Industry Media Mission to New England	01-Apr-96	Boston	DFAIT	613-944-9440
Software Market Study	01-Apr-96	Boston	DFAIT	613-944-9440
Strategic Partnering in the U.S.: Seminars	01-Apr-96	Princeton, NJ	DFAIT	609-252-0777
Technology Inflow Activities	01-Apr-96	Detroit	DFAIT	613-944-9475
Technology Partnership Program	01-Apr-96	Washington, D.C.	DFAIT	613-944-8821
Technology Partnerships Mission	01-Apr-96	Chicago	DFAIT	613-944-9440
Telecommunications/Cable Company Plans: Study	01-Apr-96	Detroit	DFAIT	613-944-6576
Telephone Call Centre Investment Seminar	01-Apr-96	Washington, D.C.	DFAIT	613-944-6576
Telecommunications Strategic Alliances Directory: Study	01-Apr-96	Boston	DFAIT	613-944-6576
Office Software Mission from the U.S.	01-Apr-96	Alberta	Alberta	403-427-6075
Canadian Telecommunications Companies Technical Seminars	01-May-96	Silicon Valley	DFAIT	613-944-6576
Public Sector Geomatics Market Report	01-May-96	Washington, D.C.	DFAIT	613-944-6576
Government Technology Conference: Mission	01-May-96	Los Angeles	DFAIT	613-944-9440
Multimedia Gaming Strategic Partnering Mission	01-May-96	Los Angeles	DFAIT	613-944-9475
CATA Globe Runner Conference: Mission from the U.S.	13-May-96	Ottawa	DFAIT	613-944-9440
Multimedia Partnering Event	01-Jun-96	Boston	DFAIT	613-944-9475
Partnership Building Seminars	01-Jun-96	San Jose/Los Angeles	DFAIT	613-944-9440
Software Partnering Opportunities Workshops	01-Jun-96	Vancouver/Edmonton	DFAIT	613-944-6576
COMDEX Spring '96: National Stand	03-Jun-96	Chicago	DFAIT	613-944-9440
Wireless Market Study	15-Jun-96	San Diego	DFAIT	613-944-6576
Supercom '96: National Stand	24-Jun-96	Dallas	DFAIT	613-944-6576
Multimedia Opportunities in Southern California: Study	01-Jul-96	San Francisco	DFAIT	613-944-9475
Canapple '96: Mission	11-Aug-96	New York	DFAIT	613-944-9475
Software Partnering Events	01-Sep-96	New York	DFAIT	613-944-9440
Telecommunications Partnering/Strategic Alliance Seminar	03-Sep-96	New York	DFAIT	613-944-6576
Internet Partnering Event	09-Sep-96	San Francisco	DFAIT	613-994-9475
Softworld '96: Mission from the U.S.	12-Sep-96	Halifax	DFAIT	613-944-9440
National Association of State Telecommunications Directors: Info Booth	21-Sep-96	Philadelphia	DFAIT	613-944-6576
Investment Presentations	01-Oct-96	San Jose/Menlo Park	DFAIT	613-944-9475
Midwest Telecommunications Exposition: Mission	01-Oct-96	Fort Wayne	DFAIT	613-944-6576
Telecommunications/Broadband Buying Intentions Survey: Study	01-Oct-96	Pittsburgh	DFAIT	613-944-6576

Activity	Date	Location	Dept.	Contact
Multimedia Live-Expo: Partnering Event	02-Oct-96	San Francisco	DFAIT	613-944-9475
Courseware NEBS Mission	01-Nov-96	Boston	IC	506-851-6421
Internet Mission from the U.S. Midwest	01-Nov-96	Ontario/Quebec	DFAIT	313-567-2340
COMDEX Fall '96: National Stand	11-Nov-96	Las Vegas	DFAIT	613-944-9440
CMA Telecommunications Trade Show: National Stand	15-Nov-96	New York	DFAIT	613-944-6576
TIES Educational Technology Conference	02-Dec-96	Minneapolis	DFAIT	613-944-9440
Dynamics of Exporting Software: Workshop	01-Jan-97	Alberta	Alberta	403-427-6075
Multimedia Producers Mission from the U.S.	01-Jan-97	Canada TBD	DFAIT	613-944-9475
Intermedia: Atlantic Canada Mission	01-Feb-97	San Francisco/Seattle	IC	902-426-7249
Media Presentation Mission	01-Feb-97	Silicon Valley	DFAIT	613-944-9478
Multimedia N.B./N.S. Mission	01-Feb-97	Boston	IC	902-426-7249
Wireless Matchmaker Mission	01-Feb-97	Los Angeles	DFAIT	613-944-6576
Utah Matchmaker Event	10-Feb-97	Salt Lake City	DFAIT	613-994-9475
Colorado Software Strategic Alliance Program	15-Feb-97	Denver	DFAIT	613-944-9440
Computer Telephony Integration (CTI): Partnering Mission to the U.S.	01-Mar-97	TBD	DFAIT	613-944-6576
Western Europe and the European Union				
European Strategic Alliances Program	Ongoing	TBD	DFAIT	613-995-0796
Virtual Reality/Interactive Media Mission from Italy	01-Apr-96	Montreal/Vancouver	DFAIT	613-995-6435
Information Highway and Advanced Network Services: Mission from Italy	01-May-96	Ottawa/Toronto/ Montreal	DFAIT	613-995-6435
Software Marketplace: Mission	01-May-96	Helsinki	DFAIT	613-995-4730
Telecommunications Policy Mission from Italy	01-May-96	Ottawa/Toronto/ Montreal	DFAIT	613-995-6435
Voice '96: Info Booth	01-Jun-96	Cologne	DFAIT	613-995-8296
Canadian High Technology Show: Mission from Austria	01-Sep-96	Toronto	DFAIT	613-995-6435
International Broadcasting Convention: National Stand	12-Sep-96	Amsterdam	DFAIT	613-995-6435
Softworld '96: Mission from Finland	15-Sep-96	Halifax	DFAIT	613-995-6435
Softworld '96: Mission from the Netherlands	15-Sep-96	Halifax	DFAIT	613-995-5435
Computer Telephony Integration (CIS): Partnering Mission to the U.K.	01-Oct-96	London	DFAIT	613-995-0796
HET Instrumentation Fair '96 : Info Booth and Seminar	07-Oct-96	Utrecht	DFAIT	613-995-6453
Orbit: Info Booth	08-Oct-96	Basel	DFAIT	613-995-6435
SMAU '96: National Stand	18-Oct-96	Milan	DFAIT	613-995-6435
Electronika '96: NEXOS Mission	01-Nov-96	Munich	DFAIT	613-943-0611
Informatics NEXOS Mission	01-Nov-96	Spain/ Portugal TBD	DFAIT	613-995-6435
Information Technologies Forum: Info Booth and Seminar	10-Feb-97	Paris	DFAIT	613-995-6435
Intercom '97: Mission from Austria	21-Feb-97	Vancouver	DFAIT	613-995-6435

Activity	Date	Location	Dept.	Contact
Intercom '97: Mission from Finland	21-Feb-97	Vancouver	DFAIT	613-995-6435
Intercom '97: Mission from Italy	21-Feb-97	Vancouver	DFAIT	613-995-6435
Intercom '97: Mission from Norway	21-Feb-97	Vancouver	DFAIT	613-995-6435
Intercom '97: Mission from Sweden	21-Feb-97	Vancouver	DFAIT	613-995-6435
Intercom '97: Mission from the U.K.	21-Feb-97	Vancouver	DFAIT	613-995-6435
CeBIT '97: NEXOS Mission	01-Mar-97	Hannover	DFAIT	613-943-0611
CeBIT '97: National Stand	13-Mar-97	Hannover	DFAIT	613-995-6435
Electronika '97: National Stand	12-Nov-97	Munich	DFAIT	613-992-7001

For up-to-date and detailed information on the activities in this document and those contained in other sectors, you may consult the CIBS Compendium. This on-line compilation of activities planned by the federal and provincial governments is continuously revised and is accessible via the Department of Foreign Affairs and International Trade World Wide Web site, at the following address: <http://www.dfait-maeci.gc.ca>

Acronyms and in Business Strategy International

(This list does not include

		DATE DUE DATE DE RETOUR		
AAFC	Agriculture			International Business Opportunities Centre
ACOA	Atlantic C			
APEC	Asia-Pacif forum			Industry Canada
ASEAN	Associatio			International Development Research Centre
BBS	electronic			International financial institution
BOOT	build, own			International Standards Organization
BOSS	Business C System			International Trade Advisory Committee
CCC	Canadian			International Trade Centre
CIBS	Canada's I Strategy			Ministry of Agriculture, Fisheries and Food of Quebec
CIDA	Canadian Agency			Multilateral development bank Multinational enterprise
CIS	Commonw			North American Free Trade Agreement
CSA	Canadian			North Atlantic Treaty Organization
DFAIT	Departme Internatio			National Research Council Natural Resources Canada
DFO	Departme			Natural Resources Canada —
DND	Departme			Canadian Forest Service
EC	Environm			National Sector Team
EDC	Export De			Organization for Economic
EU	European			Co-operation and Development
FITT	Forum fo	CARR McLEAN	38-296	Program for Export Marketing Development
FORDQ	Federal Office of Regional Development — Quebec		R&D	research and development
FSU	former Soviet Union		S&T	science and technology
FTA	Canada-U.S. Free Trade Agreement		SAGIT	Sectoral Advisory Group on International Trade
GATT	General Agreement on Tariffs and Trade		SME	small and medium-sized enterprise
GDP	gross domestic product		UNEP	United Nations Environmental Program
GNP	gross national product		WED	Western Economic Diversification
HRDC	Human Resources Development Canada		WTO	World Trade Organization



Acronyms and i Business Strate

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AAFC	Agriculture and Agri-Food Canada	IBOC	International Business Opportunities Centre
ACOA	Atlantic Canada Opportunities Agency	IC	Industry Canada
APEC	Asia-Pacific Economic Co-operation forum	IDRC	International Development Research Centre
ASEAN	Association of Southeast Asian Nations	IFI	international financial institution
BBS	electronic bulletin board system	ISO	International Standards Organization
BOOT	build, own/operate, transfer	ITAC	International Trade Advisory Committee
BOSS	Business Opportunities Sourcing System	ITC	International Trade Centre
CCC	Canadian Commercial Corporation	MAPAQ	Ministry of Agriculture, Fisheries and Food of Quebec
CIBS	Canada's International Business Strategy	MDB	multilateral development bank
CIDA	Canadian International Development Agency	MNE	multinational enterprise
CIS	Commonwealth of Independent States	NAFTA	North American Free Trade Agreement
CSA	Canadian Standards Association	NATO	North Atlantic Treaty Organization
DFAIT	Department of Foreign Affairs and International Trade	NRC	National Research Council
DFO	Department of Fisheries and Oceans	NRCan	Natural Resources Canada
DND	Department of National Defence	NRCan-CFS	Natural Resources Canada — Canadian Forest Service
EC	Environment Canada	NST	National Sector Team
EDC	Export Development Corporation	OECD	Organization for Economic Co-operation and Development
EU	European Union	PEMD	Program for Export Marketing Development
FITT	Forum for International Trade Training	R&D	research and development
FORDQ	Federal Office of Regional Development — Quebec	S&T	science and technology
FSU	former Soviet Union	SAGIT	Sectoral Advisory Group on International Trade
FTA	Canada-U.S. Free Trade Agreement	SME	small and medium-sized enterprise
GATT	General Agreement on Tariffs and Trade	UNEP	United Nations Environmental Program
GDP	gross domestic product	WED	Western Economic Diversification
GNP	gross national product	WTO	World Trade Organization
HRDC	Human Resources Development Canada		



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