

Information technologies

Canadian information technology companies have developed impressive global niches over the last decade. They are well positioned to take advantage of changes arising out of the Single Market. In telecommunications, the contributions of Canadian firms such as Mitel, Northern Telecom, and Newbridge are well known, but many more can be named, such as Glenayre Electronics, MicroTel, Develcon Electronics or Gandalf Technologies. Instrumentation technology is another area of Canadian strength, featuring firms including Lumonics, Sciex, and Westhead Industrial Systems. Canadian companies have also demonstrated leadership in software development, carving out niche markets in areas like geographic information systems, resource exploration, and hospital systems.

Information technologies is a vast and rapidly evolving industry that encompasses computers, telecommunications, microelectronics, instrumentation, electric components and software. With the growing integration of voice, data and visual communications, these areas are becoming hard to distinguish. They have given rise to a variety of telecommunications services such as mobile telephones, new broadcasting technologies, facsimile, videotex, telex, packet-switched data, and circuit-switched data.

The EC produces almost a quarter of the world's computer and electronic goods. EC electronics production represents 8% of overall industrial production in the EC and has been one of its fastest growing sectors. Between 1980 and 1988, telecommunications and audiovisual equipment grew at a rate of 9% annually while computers and office equipment grew at 14%.

Structure

Global information technologies is a highly concentrated industry. For example, in telecommunications, the ten largest companies control about half of the market. In the EC, the sector is dominated by large firms. For example, the two largest EC employers, Siemens and Philips, are heavily involved in the industry. Philips is the seventh largest company in the EC. In 1988, its worldwide turnover reached \$34.8 billion, 61% of which was generated in Europe.

The EC industry is facing tough competition and its major corporations have been focusing on their strengths since the early 1980s. For example, Canadian General Electric (CGE) gave up making diesel engines and low tension gears in order to strengthen its communication and information activities.

Tough competition has led to increasing internationalization in the sector. In order to survive, European firms have had to establish themselves in the U.S. market. This, added to the astronomical costs and risks involved in the development of new products, has stimulated M&As and strategic alliances both at home and abroad. Although

Nixdorf started to penetrate the U.S. market successfully in the late 1980s, it had to be acquired by Siemens in order to remain healthy. Conversely, CGE and ITT concluded an agreement which enabled CGE to increase its presence in different EC countries and to a lesser degree in the U.S. In order to keep up with internationalization, ICL of the U.K. was acquired by Fujitsu of Japan.

Telecommunications: The public sector is a dominant force in the telecommunications and electronic information services sectors, although this is changing with Community-wide liberalization. There is a trend towards privatization; for example, British Telecom was privatized in 1984 and has given regulatory and supervisory authority to a private company, Oftel.

Developing Europe's telecommunications infrastructure is essential to achieving the full benefits of the Single Market. The waste and lack of competition associated with the fragmentation of public procurement in the Community is estimated to cost approximately \$30 billion per year. With this in mind, in June 1987, the EC Commission issued a Green Paper on telecommunications containing a program of regulatory change to meet the twin challenges of 1992 and technological development.

As a result, public procurement has been opened for all value-added services within and between Member States, and the movement of terminal equipment and receiving antenna equipment within and between Member States has been liberalized. Any measure that prevents the movement of goods between Member countries has been prohibited. Barriers to imports and legislation that could indirectly have the same effect have also been prohibited. For example, it is no longer possible to require that certain products conform to standards which only national manufacturers could meet. Restrictions which discriminate against non-nationals seeking to establish professional activities in EC countries have also been prohibited. These measures also seek to ensure the publication of tender notices and to prohibit the illegal exclusion of bidders or applicants from Member States, for example by fixing discriminatory selection criteria. These provisions are expected to be fully implemented by 1994.

Computer electronics and software: The few European companies still committed to microchip production have placed their faith in JESSI - the \$5 billion Joint European Submicron Silicon research initiative. However, JESSI has encountered problems. Philips has cut its commitment to the program while American and Japanese firms established as manufacturers in the EC are demanding the right to participate in it. These newly arrived Americans and Japanese include Texas Instruments, which is building a factory in the U.K., and Hitachi and Mitsubishi, which are setting up in Germany.