

Information technologies tend to be very concentrated but this is not the case for computer software. There are 13,000 to 15,000 EC software companies, employing 287,000 people. The diverse products and services in this sector are supplied by a variety of different companies including hardware manufacturers who sell software, systems houses, independent software vendors, professional consultancies, computing centres, software training specialists, and business information services.

The sector has developed differently in the various Member States. Software packaging is stronger in Germany, while custom software and consulting is more highly developed in France.

### Market

The importance of the sector to the EC Member States varies considerably. For example, because of non-EC investment in production facilities, information technologies accounted for 17% of Irish industrial production in 1988, but only 5% of Italy's industrial production and 3% of Spain's.

The vast amounts of money required for R&D mean that product prices are initially very high to recoup the investment in new products. Prices then fall to discourage other competitors. European companies tend to enter the market late, after the price has fallen, and for this reason they often have a hard time paying back their investment.

**Telecommunications:** In the telecommunications industry, the financial stakes are considerable since the EC market accounts for almost a quarter of the total world market. Canada has a well developed telecommunications industry, and it has the strengths necessary to do well in the EC. The contributions of Northern Telecom to digital telecommunications and Mitel to small analog PBX telephone systems is well known, but Canada has a large number of small- and medium-sized businesses with proven track records too. The success of smaller firms will depend on their ability to identify and fill market niches in the EC.

**Value-added telecommunications services or networks (VANS):** In this area, Canadian firms will probably meet with more success as consultants or partners to EC-based firms, rather than attempting to provide the services which depend on securing access to the public networks. Canadian firms have a good deal of expertise in this area, and would be valuable partners for EC firms. Airline reservation kiosks are one type of sophisticated VANS application. They provide automated ticketing services similar to automated teller services provided by banks.

**Computers:** Worldwide, computer services and software have been the fastest growing areas in information technologies. This is particularly true in Europe, where sales have been driven by the integration of European markets. In fact, European sales have been major factors in keeping the North American industry afloat. For example, in 1989, 71% of IBM's net income came from Europe, making up for its losses in the U.S. market. As a result, the world's computer companies are scrambling to position themselves in Europe.

Canadian software professional (systems) services firms have been finding niches in which they can be successful. Many service firms have followed their large customer firms into international markets. Successful Canadian niche-oriented service firms include GEAC in library services; Cemcorp and its distributor Unisys in the educational materials field; LOGIBEC in the health care sector; and Brant in the artificial intelligence field.

## Top computer software and services firms in Europe

IBM  
 Unisys  
 Cap Gemini Sogeti  
 Siemens  
 Digital  
 Finsiel  
 Reuters  
 Transpac  
 Olivetti  
 Bull  
 Datev  
 Sligos  
 GSI  
 McDonnell Douglas  
 Scicon  
 Volmac  
 Sema Metra  
 CISI  
 Andersen Consulting  
 Computervision  
 Computer Associates  
 ICL  
 Telesystemes  
 Thorn Software  
 Microsoft  
 Logica  
 CCMC  
 CAP Group  
 Intergraph

## Top independent custom software and systems development firms

Cap Gemini  
 SD-Scicon (from Systems Designers, U.K., and Scicon International)  
 Sema Group (from Sema Metra, France, and Cap Group, U.K.)  
 Finsiel (Ireland)  
 Sligos (France)  
 GSI (France)  
 Datev (Germany)  
 CISI (France)  
 Logica (U.K.)  
 Thorn Software (U.K.)