

number of Canadian software and professional (systems) services firms have gained an international recognition and foothold. The software firms have successfully grown by finding niches, the service firms by globalizing in tandem with the giant firms they serve.

Because of the customized characteristics of most computer services and specialized software, firm size is of little consequence and economies of scale are necessarily limited, or non-existent, except possibly in the marketing function. Only in the case of mass market software, such as games and word processing, with its expensive packaging and development costs, are economies of scale important. Thus entry into the sector is relatively easy, as the large number of small- and medium-sized computer services and software firms in Canada testifies. The prerequisite for successful entry and survival are (a) knowledge of new technologies; (b) the development of a reputation as a supplier of high-quality services and materials; and (c) the creation of an organization that is credibly viable and sufficiently mobile to provide "on the spot" software "repair" services.

Because of the very large number of specialized uses of computer services and software, most firms in this sector develop and occupy niches. There are numerous examples of firms that have developed niches in which they now play an important if not dominant role. They include GEAC in the library services market, including a U.K. presence; CemeCorp and its distributor Unisys in the educational materials field; LOGIBEC in the health care sector; and Brant in the artificial intelligence field.

The prospects for further expansion of the computer services and software sector are bright as the standardization of equipment and the development of new technologies increase the demand for software, systems integration and new

value-added services. Examples include electronic forms software and increasingly sophisticated systems for electronically dealing in currency and other commodities. Moreover, the decision by the Commission of the EC to officially adopt ISDN as the basis of a future EC telecommunications-information network opens up numerous opportunities for new software and integrated systems development. However, because ISDN requires end-to-end digitalization of the network, it is likely to be years before it is the operative technology in anything more than geographical pockets.¹⁴

While software development can be carried out in Canada it will take European contacts to effectively market in the EC. In the case of professional services, which include consulting services and custom software development, sales in Europe will require a "local" (European) presence. Leading firms such as the Montreal-based DMR Group, are already locating in foreign markets via mergers, acquisitions and consortia. For such firms Europe 1992 means an increase in opportunities for expansion.

3.3 "Value-Added" Telecommunications Services

The component of the telecommunications sector whose EC opportunities are most difficult to assess is that which provides value-added telecommunication services or networks (VANS). The provision of VANS requires access to the public telecommunications network. VANS are services that use the basic telephone network to provide access to information in alphanumeric, video and voice form. Most VANS involve data handling. They include on-line electronic information (NEWS) services, data processing services such as interbanking and airline-reservation systems, electronic funds transfer, and messaging services such as electronic mail. The world market for