

In the absence of legislative authority to impose European policies or harmonization, the Commission has focused considerable efforts on the one area where its chances of success are reasonable, i.e. equipment standards and common interconnection policies. Standards represent the mechanism to attain a single, competitive market and play an important role, for example, in the proposed new European cellular digital network and in other new services, such as direct broadcast satellite (DBS) distribution, High Definition Television (HDTV) and an integrated broadband communications network (IBC).

The changes in Europe will affect Canada in different ways. Clearly, liberalization of the European market could afford new potential opportunities for Canadian companies in the sector. Conversely, however, the measures being adopted in Europe will strengthen its companies. There is thus the probability of increased penetration of Canadian markets by more competitive European equipment or services producers (i.e., increased imports), coincident with the displacement of Canadian products or services in third markets (loss of export markets). This will require an ongoing review of the extent and forms of economic participation in Europe that benefit Canada in this sector, eg, direct exports, Canadian direct foreign investments in Europe, joint ventures, and licensing arrangements. Obvious areas for early federal consideration are existing S&T programs, industrial support programs and the general telecommunications policy orientation. Federal-provincial cooperation will also become increasingly important if Canada is to lever its relatively small national R&D resources for maximum effectiveness.

The preliminary analyses of the European Commission's S&T programs indicate Canada has much to learn on the design and management of large-scale, "precompetitive" R&D projects. The two major programs in the telecommunications and information sectors are ESPRIT (the European Strategic Programme for Research in Information Technologies) and RACE (Research in Advanced Communications Technologies in Europe) which, in combination with other minor programs, command a five year Commission budget of \$3.2 billion (Cdn); when matched by private sector contributions, the total expenditures are \$6.4 billion. This compares with the overall European Community's S&T budget of about \$15 billion. ESPRIT, the largest and broadest program in the portfolio (with a five year budget of \$2.2 billion), is designed to develop large scale, pre-competitive consortia among European-based information technology companies, in addition to its basic research objectives. The present emphasis in ESPRIT is on the microelectronics industries. RACE, with a budget of \$770 million, is directed at the next generation of telecommunications network infrastructure, i.e., integrated broadband communications (IBC). Taken together, these two programs indicate European determination to invest in advanced telecommunications facilities and to foster their integration with new European manufacturing capabilities. In addition, there are other major pan-European programs, such as EUREKA, and, as noted earlier, substantial national R&D efforts.

Canadian participation in the growing European S&T programs could become an important opportunity to acquire both technology and a market presence in post-1992 Europe. Common areas of interest have already been identified in an earlier Department of Communications study³. However, as the participation of Canadian-based companies in European S&T programs is limited by Commission policies to companies with research facilities in Europe, other means of association will be required. These may be more, or less, costly in the long run and include joint ventures, acquisitions, or licensing arrangements, among others.

Implications for R&D Co-operation and Industry Programs

1. The extent of resources committed to this sector in Europe suggests a need to reassess Canadian R&D priorities and industry support programs in the telecommunication sector and in the closely related computer/information technology sectors. The domestic review should differentiate between major Canadian players (e.g. Northern Telecom) and small to medium size enterprises (SMEs). Starting points would include: a) the Department of Communications Vision 2000 process and the

³ Peter J. Booth, Wescom Communications Research Inc., "Potential for International Cooperation in Information Technology R&D in Western Europe", April 1988.