procurement policies, cross-subsidization of postal services, and general employment policies. Second, there were no apparent European competitors in the growing computer and information sectors to match multinational corporations in the U.S. and Japan such as IBM or Fujitsu. Moreover, the long-term strength of European electronics manufacturers was questionable. The concept of Europe 1992 and the policies that are being put into play in the telecommunications and information sectors are intended to respond to these challenges on an unprecedented scale.

Strategies to Reshape European Markets for Telecommunications and Information Technologies

The European Community is pursuing two broad strategies in its drive to make the telecommunications sector competitive internally and, as a consequence, on an international scale. The first pillar is a step-by-step regulatory and policy process through Directives, Regulations, Recommendations and Proposals issued by the European Commission which will reshape the national and pan-European environments. This process is outlined in the Commission's extensive Green Paper on the Development of the Common Market for Telecommunications Services and Equipment issued on June 30, 1987.

The second pillar is a major scientific and technological (S&T) support program focused upon strategic industrial sectors. The Commission's budget for the current five year cycle of this S&T Framework Program is ECU 5.4 billion (about $7.5 billion CDN). As this is a cost-shared program, overall spending by government and industry would be $15 billion (or $3 billion per annum). In addition, there are complementary R&D expenditures at the national level which, in countries such as Germany, can exceed the German contribution to the Commission's S&T budget by a factor of 8 or 9.

Telecommunications and associated information technology industries (e.g., microelectronics, computers) account for 42% of the total Commission R&D expenditures. This is the largest allocation by far and nearly double the expenditures on the next largest sector, the energy sector, which includes funds for development of nuclear energy. In contrast, Canada allocates less than 10% of total federal government R&D expenditures to these two sectors.

The Community's Regulatory Agenda in Telecommunications

The policy objectives of the Community for 1992, as expressed by the Directives, Regulations and Recommendations of the European Commission, are the following:

1. full terminal equipment competition based on common standards;
2. full network equipment competition based on agreed government procurement rules for the PTTs;
3. increased levels of competition in telecommunications services, such as Value Added Networks (VANS), outlined in proposals for Open Network Provision (ONP);
4. a sustained movement towards a more cost-based pricing structure.

New institutional mechanisms to support the new arrangements are being put in place. These include:

1. encouraging the establishment of an independent standards body, the European Telecommunications Standards Institute or ETSI;
2. agreement to establish national regulators that are independent and separate from the PTTs;

Two additional telecommunication services initiatives are scheduled over the short term. First, the Commission will issue a Green Paper on European satellite services. Second, there is the planned establishment of a pan-European digital cellular network in 1991 which will offer an alternative to the existing but incompatible national cellular systems.