CHAPTER VI

CONCLUSION

The performance of Western Europe in the high technology sectors in the 1980s has not been impressive. Our study (Chapter II) confirms the fact that there exists a technology gap between Western Europe on the one hand and the US and Japan on the other. Europe neither lacks financial resources nor trained personnel to carry out basic and applied research at levels comparable in quantity and quality to similar efforts in the US and Japan.

Although European levels of R & D spending are adequate, the national innovation policies have discouraged the formation of advantageous relationship between academic and industrial firms, thereby limiting the interchange of information and technical personnel, which is of great importance at the early phase of the innovation process. Western Europe's industrial structure relies heavily on a few large firms, which have been protected by national governments. The industrial structure neither encourages vigorous competition among high technology firms nor promotes advantageous
collaboration between them. Low rates of entry of new firms into the market, and government emphasis on national champions explain the former phenomenon, while cultural, language and regulatory barriers account for the latter.

The lack of intense competition in Western Europe has resulted in a weak industrial response to the market. Government policies have protected national champion firms, providing preferential access to public markets and R & D subsidies. They have focussed on stimulating the technological excellence of national firms, but not on measures to increase innovation and competitiveness in the market. Therefore, Europe's competitive weakness lies in the market, as well as commercialisation and appropriate adoption of technology.

Since 1984 several pan-European programmes have been initiated, which are based on the assumption of a technology gap and seek to promote industrial competitiveness through transnational technological collaboration. European Commission initiated as outlined in Chapter NJ a series of collaborative R & D programmes, such as ESPRIT, RACE, BRITE, which involve companies, universities and research institutes with pre-competitive approach, under the umbrellas
of Framework Programme. The purpose of Framework Programme is to strengthen the technology base of European industry and to encourage it to become competitive at the international level.

To improve industrial innovation in Western Europe, there must be a greater focus on "market-driven" rather than "technology-driven approaches", that is, the creation of conditions where innovation can flourish. In 1985, a new start made its appearance in the firmament of European technological cooperation: the French inspired multilateral venture, Eureka bringing together 21 European countries and the Commission of European Communities.

Eureka is a Europe-wide network promoting "market-driven" R & D projects in various fields of advanced technology. Eureka's innovative approach to European Research and Development provides participants with the opportunity to launch pan-European R & D projects on their own initiative and secures them a minimum of bureaucratic interference and a maximum of control and flexibility.

Eureka initiative is based on new pattern of collaboration, with its bottom-up principle, flexible and
decentralized, bureaucratic procedures and market orientation approach which set Eureka apart from other R & D programmes in Europe.

The bottom-up approach and the flexible and decentralized character offer excellent opportunities for industrial partners to carry out the research they consider to be important, with the partners of their choice. This has resulted in a great variety of projects ranging from small bilateral projects to large prestigious projects and there is no limitation on the technological areas covered by Eureka. This advantage has been regarded to be a particular asset of Eureka. Eureka's flexible and decentralized character has kept bureaucracy to a minimum. Since Eureka procedures are simple, flexible and non-bureaucratic, European industries and research institutes prefer Eureka to EC R & D programmes. The concept of market-orientation has motivated both large firms and small and medium-sized enterprises to actively participate in Eureka project.

Supportive measures, umbrella projects, support for small and medium-sized enterprises, and synergy between EC's R & D programmes are four wheels of Eureka. It is worthwhile to review these aspects which set the momentum
for Eureka as a distinct programme. The improvement in these aspects would lead to further improvement of Eureka at the operational level.

Supportive measures which are aimed at promoting compatible standards and other regulations are mistaken for public funding whereas aspects such as harmonization, standardization and legislative support are not understood by participants. This is in part due to the vagueness of the concept and confusion among the participants about what supportive measures were. The vagueness and confusion about the concept are mainly due to the failure of Eureka member states to clarify the concept and lack of central mechanism for defining and implementing them. Therefore, Eureka should further develop service function both at the national secretariats (NPC) and Eureka secretariat to provide additional information to participants seeking these measures and make supportive measures a more tangible source of added value for Eureka participants.

The umbrella projects, which are run by the participants themselves, could contribute to more efficient and effective use of limited manpower within national Eureka offices provided they are properly organized and managed. The
umbrella projects are considered beneficial in the formative stages of projects helping to clarify the objectives, and find new partners.

But there is much concern that umbrella projects such as JESSI and HDTV projects have become totally independent over which public officials have little control as they have their own information systems. As a result Eureka's central data base has insufficient information on sub-projects underway within umbrellas. To join a project, interested partners must then seek information from umbrella project boards, which are often resistant to new partners. A general conclusion could then be drawn that while little could be done to influence umbrella projects that were already in existence, in the future great care must be taken when establishing new projects of this type by defining clearly the scope of their work and also making them more accountable to Eureka as a whole.

Nearly all member states have agreed and adopted a common goal of enhancing the participation of SMEs, which are keenly market-oriented but less experienced in collaborative R & D than large firms and other types of organizations. But SMEs participating in Eureka compete
almost to the same extent in the international markets as do the larger companies. It is demonstrated clearly that SMEs benefit from Eureka in establishing new business relations abroad and that Eureka has a clear impact on their R & D strategy.

Evidently, SMEs have more problems with the formal and legal organization of their projects and suffer more than others types of project participants from haphazardly-timed deliveries of public funding and Eureka's lack of transparency. Although the rate of SMEs participation therein is increasing, there is certainly more that could be done to assist them and enhance their participation. The participation of SMEs could be further encouraged by providing better information, assisting in the field of partner search and providing financial support for project definition and feasibility studies. The different funding procedures in member states should be synchronized and released at pre-determined time. This would benefit the SMEs and allow them to manage their projects efficiently. At the same time, the funding procedure should be made transparent so that each project partner knows how much public funding his partner has been awarded. Common, transparent and timely funding procedure would especially
benefit SMEs and simplify their planning and management of projects.

The EC-Eureka relations have a history of tension. However, R&D Commissioner of EC, Filippo Maria Pandolfi's commitment to strengthen EC links with Eureka has produced some tangible results. The differences in concepts and execution of EC's R & D programmes and Eureka schemes should be respected and maintained which means in principle the two mechanisms should remain separate. But the central problem of EC and Eureka relationship is to ensure that the Framework Programme and Eureka do not duplicate each other. EC has attempted with a few measures which are outlined in Chapter IV to avoid duplication as far as possible. However, there are areas of overlaps and opportunities for synergy between the programmes, which should be dealt with, in a pragmatic manner and with close cooperation between the EC and Eureka.

To strengthen the links between Eureka and the EC, the Commission should promote the use of Eureka as an instrument to impart market orientation to the European Community Research. The Commission should, therefore, encourage
participants in EC programmes to capitalize on the results through participation in Eureka.

The participation of EC in Eureka projects could be encouraged if a link is established between Eureka and pre-competitive projects of the EC. In such cases, EC funding should be primarily aimed at the pre-competitive part of Eureka programmes. The financial participation by the Commission could facilitate the role of the EC in the field of standards. The Eureka secretariat's role on standardization matters may be aimed primarily at informing the responsible offices such as, standardization organizations and offices in the EC. Therefore, links at the working level between Eureka and the EC should be reinforced with a view to activating EC in further strengthening European standardization.

There is, however, no gainsaying the fact that Eureka has taken a major step towards establishing a European High
Technology Community’ by involving all the members of European Economic Area rather than just bringing together only the 12 members of European Community. EUREKA membership includes 12 members of EC, 6 members of EFTA, 2 East European countries, Turkey, and the Commission of European Communities. Poland, Croatia, Slovenia, Yugoslavia, Czech and Slovakia are among 20 non-member countries who also participate in Eureka projects.

Today, the Eureka initiative has succeeded in securing commitment of ‘Greater Europe’ to master and exploit the technologies, which will prove decisive in the worldwide race for competitiveness and better quality of life through closer cooperation among industries, universities and research institutes.

The fundamental aim of Eureka, a European High Technology Community of ‘Greater Europe’, is to raise the productivity and competitiveness of Europe’s industries and national economies on the world market through products, processes and services having a worldwide market potential through intense cooperation.
The need for 'European high technology community' should be set in the context of their declining global trading position in the high technology products in the early 1980s. The fragmented European industry woke up gradually to the realization that it had allowed the US and then Japan to acquire seemingly dominant technological lead over them. Therefore, Europe strongly felt that industrial progress depends upon their prowess in high technology which, in turn, springs from research and development.

As the global economy becomes more competitive and R&D subsequently more expensive, European industries must pool their resources to compete internationally. Together, Europe's industries have the resources to match those of their competitors. However, unlike them, they are separated by language barriers and legal and cultural differences. Eureka initiative, in fact, has provided excellent opportunities for European states, industries, and research institutes to overcome these barriers and their historical divides in socio-cultural and politico-economic domains.

The real fruits of Eureka initiative have just begun to appear in the form of 112 finished projects in October
1993. Nevertheless, an important caveat must be added that majority of the 650 projects (in all) are still in progress, and about 112 projects in various technological areas have recently been completed. This prevents us from making quantitative appraisal of effects of Eureka products in the world market. However, some clear patterns have emerged and they form the basis of our conclusion.

In the few years since 1985, the number of on-going projects has risen from around 210 to 650. The 112 finished projects, therefore, are only the first sign of an approaching increase of European high technology products, processes, and services in the global market. In terms of their estimated cost, number of participants, and average duration, they are essentially similar in profile to the other on-going projects. There is, therefore, every reason to expect the number of finished projects to keep rising, and this will mean more and more projects maturing in the coming years, particularly in the medical, biotechnology and environmental areas.

Eureka initiative bears a number of advantages for its participants. The most important benefits for participants in Eureka are the sharing of risks and costs of Research and Development and access to complementary technological know-how, which may also be followed by commercial and market returns. Eureka can also help participants in finding the right partner, and setting up partnership based projects. When participants face technical obstacles to trade, while commercializing a new technology or to get a technology going, Eureka could help by referring the case directly to the appropriate authorities who may facilitate their task through their supportive measures, available both at the national and European level.

The projects which receive Eureka status have the advantage of being recognized as a high technology project of outstanding quality and potential. Eureka status, which is a seal of excellence and hallmark of quality, contributes positively to the success of products in the market.

The benefits of Eureka projects are not necessarily confined to those participants taking part in R & I programme. Several Eureka projects also have the potential:
to yield more general welfare benefits such as environmental and/or health improvements.

A group of environmentally beneficial projects are in a broader category of clean technologies which offer more environmentally-friendly substitutes for polluting technologies. Examples of this type include a project applying lasers for which could help eliminate some toxic surface treatment technologies currently in use. However, the most numerous category of environmentally beneficial products are those which, though driven by economic motivation, nonetheless result in more efficient use of materials or the incidental elimination of polluting substances. Examples of this type include a project developing enzymes for the treatment of pulp and paper products which would reduce the use of chlorine.

There are Eureka projects which are likely to lead to health and safety benefits. One such example which would lead to health benefits is a commercial project aimed at developing diagnostic kits for allergies and consequently open the way to new treatment. An example of a potential safety benefit embodied in a product is a vehicle headlight system based on short-arch discharge lamps which could
reduce traffic accidents because of better visibility from higher light intensity.

Eureka, therefore, must not be seen only as a very useful mechanism for enhancing the competitive position of Europe in few high technology sectors: information, telecommunication, robotics, laser and transport. The initiative has also launched several projects such as STABINE, PARSIM, DYMECHROM and EUROENVIRON-ECO-TANK, aimed at the creation of technical pre-requisites for building scientific and technological modern infrastructure and solving the transboundary problems especially those concerning environment, health and safety.

The increasing popularity and success of Eureka is evident from the fact that now there are 650 actively running projects, with a total estimated cost of around 13 billion ECUs, and involve some 3,500 participants, over 1500 of which are large companies, some 750 small and medium-sized companies, and more than 1000 research institutes, including universities. The success of Eureka can also be illustrated by the fact that as per Eureka Assessment Panel Report (1990) half of Eureka participants have expressed their willingness to continue to participate in its projects. The
remaining half at that point of time were not in a position to express their opinion, and only 3 per cent gave negative indication. More than anything else, it may be added that while SDI, with the disappearance of the Soviet Union from the global scene, has faded out, Eureka continues to function as a dynamic and innovative enterprise.

Eureka has been able to contribute to European industrial competitiveness and this contribution has developed along two lines. First, Eureka has effectively provided a framework for technological cooperation across borders between industry and research organizations and between complementary products. Second, on a technology level, Eureka has contributed to the acceleration of new products on a wider scale.

Eureka is an innovative tool, and its structure is built to mobilize dynamism and innovative strength of European industries. Innovation is crucial to economic performance, and its central role in competitiveness is more than an article of faith.

Innovation accompanied by the ability to commercialize its improvised products may help engender greater employment
and prosperity. And it is here that market orientation of the Eureka projects is expected to bear tangible dividends. As yet, it is too early to compute exactly the beneficent effects of Eureka alone. Nonetheless, now indications are becoming increasingly available that (as per the 1990 International Manufacturing Futures Survey) "the rate of improvement in Europe during 1988-89 nearly tripled to 6.5 per cent per year, suggesting that the European firms have finally joined the Japanese and American competitors in the quality revolution which has been sweeping the industrial world". Does it not then show that Europe is gradually drawing itself out of the Eurosclerosis, which had cast grievous spell on the European industrial mind-set in the early 1980s, and now a decade later in the early 1990s, no one talks about it anymore. Rather, Europe is currently engaged in shaping up new edifices of European Economic and Monetary Union, which doubtlessly when accompanied by new market skills to commercialize their industrial manufactures bearing high quotient of high technology may help Europe leap-frog at least into the threshold of European High Technology Community perhaps by the turn of this century.