COMMISSION OF THE EUROPEAN COMMUNITIES

COM(85) 530 final

Brussels, 30 September 1985

Implementation of the Commission's Memorandum

"TOWARDS A EUROPEAN TECHNOLOGICAL COMMUNITY"

(Communication of the Commission to the Council)

COM(85) 530 final

TABLE OF CONTENTS

1. Introduction

The aim of making Europe powerful, present and competitive on the world scene cannot be divorced from that of equipping her with a dynamic scientific and technological system that will make for balanced development in all areas of vital interest to her (agriculture, industry, new technologies, the preservation and improvement of human environments, health, safety, etc).

In order to attain this dual aim, the only suitable response is a general industrial R&D strategy making it possible - through broad political analysis and decision - to maintain the necessary balances between different measures and investments.

In this connection, although they sometimes adopt different approaches that vary in scope or ambition, the studies conducted by the Commission of the European Communities [1] and the discussions held and positions adopted by the European Council, [2] the European Parliament [3] and representatives of the 17 European countries at the recent European Technology Conference in Paris [4] are all based on similar findings, reach similar conclusions and clearly indicate the consensus reached, namely that it is necessary to establish a scientific and technological community open to all European countries.

The European Council in Milan endorsed the Commission's report entitled "Towards a Technology Community" (COM(85)350 final), which now has to be put into effect.

---

(1) Communications from the Commission to the European Council entitled "Strengthening the Technological Base and Competitiveness of Community Industry" (COM(85)350 final)

(2) Conclusions of the European Councils of 29-30 March and 28-29 June 1985

(3) Resolutions of the European Parliament of 13 June and 9 July 1985

(4) Conclusions of the European Technology Conference of 17 July 1985

The memorandum proposes that a new overall scientific and technical programme for the Community should be drawn up and put into effect without delay, together with accompanying measures defined in the Commission's White Paper on the completion of the internal market and promotion of cooperation between European industrial firms.

The establishment of the European science and technology community should, in the Commission's opinion, be marked by an aggressive strategy, a qualitative leap and an acceleration and intensification of efforts.

In the next five years an intensive RD&D effort in a variety of fields will have to be deployed in Europe. Stronger national policies, an expanded common policy and numerous cooperation projects (EUREKA, COST, etc) can and must contribute towards the achievement of this aim.

An overall strategy, ensuring that these various currents of development are both consistent and convergent, must be worked out to serve as a guide to action towards achieving the European scientific and technological Community.

The necessary qualitative leap is now possible. On a political level, the success encountered by the EUREKA initiative and the support given by the Member States and industry to Community technological programmes show that European awareness exists. The Community has built up considerable scientific and technical assets in terms of both methods and action. The many schemes implemented in recent years, which have formed part of a continuous training and integration process in Europe, have made it possible to establish a European network linking together firms, universities and national research centres involved in increasingly numerous and diversified Community R,D&D programmes and activities.

The success of the ESPRIT Programme and of the recent calls for proposals in connection with the BRITE, stimulation, biotechnology and new energy sources programmes also demonstrates the ever-increasing interest aroused by Community action, in which both industry and the scientific community are taking an active part and for which they are conducting work of a high standard.

The memorandum entitled "Towards a European Technological Community" (COM(85)350 final) clearly indicated the objectives to be attained; practically speaking, what should be done now is:

- to work, in conjunction with all the partners concerned (Member States, European non-member countries, industry and other European S/T organisations) towards the identification of common objectives to be pursued by confirming, adjusting or broadening the objectives already set for the period 1984-87 and to establish priorities for the new Framework programme (1987-91);

- to modulate and specify the actions and activities to be developed or undertaken (generic sciences and technologies, strategic programmes, large facilities and schemes for creating a Researchers' Europe);

- to ensure consistency between national activities and different types of action conducted at different levels and in different contexts;

- to complete the internal market and improve the innovation process;

- to modify the institutional structure in order to speed up the Community's excessively slow decision-making procedures;

- to decide on the financial commitment needed in the medium term for the planning of activities on a scale commensurate with the objectives to be attained.

II General Action Plan

In July 1983 the Council decided to implement the Community's scientific and technical strategy by means of multiannual framework programmes.

The Commission now considers that the review of the 1984-87 Framework Programme, planned for 1986, should be carried out speedily so as to ensure that a second Framework Programme for 1987-91, representing the qualitative leap heralded in the communication entitled "Towards a European Technology Community", is drawn up and adopted without delay.

1. Definition of the new Framework Programme 1987-91

The collection of information for this second Framework Programme has already been started (in particular during the exercise for the comparison of national and Community R&D policies - COPOL 85 - organised by the Commission together with CREST) and its preparation will therefore be continued forthwith in close cooperation with the Member States, due consideration being given to all the recent European measures in the area of science and technology.

Initial studies indicate that the goals and objectives identified in 1983 are still largely valid but a new balance should be struck and the advisability of introducing certain new topics should be discussed.

Over and above the topics already covered in current projects on information technology, industrial technologies or biotechnology, for example, all of which will have to be expanded, it is necessary to launch or intensify research in areas such as the use of space, marine sciences and technologies or transport engineering and to improve services, infrastructures and communications in the Community.

Here experience has shown the need for flexibility in developing those activities; instruments have gradually been adapted to meet this need.

It must be made clear that in implementing Community RD&D programmes and activities the Community does not intend to cover all the requirements central to the attainment of these objectives. In its view, where national or multilateral programmes and activities capable of meeting these objectives already exists there is no need to develop new measures at Community level. The Community does not wish to usurp national authorities in the management and implementation of these activities but it does believe that, in the light of their value to the Community, the coordinated planning of these programmes is necessary to achieve the objectives of the scientific and technological community. This approach would enable the Commission to carry out to the full the task given it by the Council of coordinating national scientific research and technological development policies.

At the end of 1985 the Commission will put forward the main guidelines for the new framework programme so that in February 1986 the Council may hold an initial discussion on these guidelines and the main activities stemming from them. The Commission will then submit its proposals in July 1986 so that the Council can decide on the new framework programme be ore the end of 1986.

2. Activities to be considered

Amongst the activities to be considered in order to attain the planned objectives, the Commission has identified the following topics on which proposals will be made in 1986 and early in 1987.

Information Technologies

Activities must be continued and stepped up in the areas of micro-electronics, software engineering, advanced information processing, including high-capacity computers and artificial intelligence, and also in major applications sectors such as computer-integrated manufacturing and office automation, possibly together with some aspects of consumer electronics. With the ESPRIT programme in its second year, almost all the R&D fields and subjects are now covered by some 180 contracts now involving 1300 researchers and engineers. As a result of the drive towards cooperation created by the participation, alongside the major manufacturers, of small and medium-sized firms, universities and research centres, almost all the scheduled funds have already been earmarked.

It is now essential to take advantage of this momentum by rapidly evaluating the progress made and endeavouring to consolidate it. The Commission is therefore examining the adjustments to be proposed in respect of the main sections of the ESPRIT programme, the management procedures and the operational arrangements, which, while preserving the precompetitive character of the activities, should make it possible to develop major target-oriented and demonstration projects.

The review scheduled in the initial Council Decision is under way and its results will be available before the end of the year. Consultations and studies have been started on the preparation of a proposal for the second phase of ESPRIT that should be referred to the Council in the first half of 1986.

The biotechnologies will be the subject of several proposals:

- one for the renewal of the medical research programme involving the reorganization of the existing programme running to the end of 1986 and new projects such as research on AIDS and a "cancer" coordination project in accordance with the decision taken at the Milan Summit (see People's Europe);

- a review of the existing biotechnology programme, for which an excellent response in terms of both quality and quantity was obtained to the call for proposals;

- a proposal on the application of biotechnology to specific problems at the agriculture-industry interface.

These will be put before the Council in the first half of 1986.

Communications technologies relevant to both telecommunications and advanced transport techniques.

With regard to telecommunications, the Council adopted on 25 July a proposal concerning a definition phase for the RACE Programme. This aims to concentrate the research capacities in the telecommunications and information technology industries in the Community, together with the R&D facilities of the PTT administrations, so as to set up the most advanced telecommunications services and systems in the medium and long term.

The RACE programme will be the outcome of a consensus reached on the basis of a thorough analysis of the present situation and future requirements to be conducted by telecommunications administrations and industry. This consensus will be worked out during the 18 months of the definition phase.

In the light of the results obtained during that phase, the Commission will submit proposals on the main RACE programme in the first half of 1987.

As for advanced transport techniques, the Commission:

- is preparing an R&D programme on transport with a view to improving competitiveness in this sector, promoting energy savings, increasing safety and limiting adverse effects on the environment. This programme concerns the road, air, sea and rail sectors and will be proposed by the Commission in mid 1986;

- is analysing the possibility of applying information and telecommunications technologies to road transport in order to improve road safety, traffic management and mobile communication. By the middle of 1986 an investigation will have been made of the requirements involved and activities to be undertaken, resulting by the beginning of 1987 in a formal proposal following consultations;

- is launching studies and will begin consultations concerning aviation development in order to pinpont the specific areas of technology in which a Community project would be both useful and necessary.

The use of space

Beyond space technology as such, this heading covers three broad areas of technology: telecommunications (already discussed), remote sensing and industrial applications.

Community research makes use of and promotes the use of remote sensing techniques in the fields of remote-sensing of resources, surveillance and protecion of the environment and land use both within the Community and for the benefit of the developing countries. An analysis of requirements in this sector is currently being carried out and could lead in 1986 to a proposal to expand Community projects.

Furthermore, the industrial applications of the results of microgravity experiments are being studied with special reference to biotechnologies and materials.

The Community projects could basically serve to promote a network of users of space technologies and a land-based infrastructure. This role would be complementary to that of the ESA, geared essentially to the development of the space sector.

Marine sciences and technologies

This subject, covering a wide range of activities at national, Community and international level, is now being studied with a view to analysing the current situation and identifying RD&D requirements. In the light of the results expected in 1986, the Commission will if appropriate propose a special effort to enable Europe to derive maximum benefit from marine resources.

- Industrial technologies

Basic technologies such as those being developed in the BRITE programme for the conventional industries and ESPRIT for information technology are useable and must be disseminated in numerous fields such as manufacturing industry or services (office automation, for example).

Here the BRITE programme, prepated in close cooperation with industry, is intended to stimulate cooperation by European industry in key technologies such as lasers, catalysis, assembly techniques, new materials, and computer-aided design and manufacturing. In view of the excellent response by industry and the scientific world to the first call for proposals, the Commission intends to propose a review of the programme in 1986.

- Education and training technologies

The Commission has explored the need for and the prospects of the use of advanced TIT to improve the technical tools required for learning at every stage in life. The DELTA programme contains R&D activities and covers the development of advanced systems cocnepts and prototypes so as to provide Europe with the sophisticated low-cost educational tools needed for distance learning. DELTA will use the results of ESPRIT and RACE. This programme will be proposed early-in-1986.

Lastly, il will be necessary to continue and accelerate the efforts aimed at the creation of the "Research scientists' Europe".

In view of the crucial importance of the Community's scientific and technical competitiveness, it would seem advisable to ensure the immediate and full-scale implementation of the Plan for stimulating cooperation and scientific and technical exchange in Europe, which should be supplemented by a series of measures representing a further step towards the creation of the Research scientists' Europe.

Thus, in addition to recommendations concerning the appropriate scale of the project for stimulating cooperation and scientific and technical exchange, the Commission will shortly be submitting to the Council two proposals relating to the implementation of measures designed to complement this activity. One concerns the retention of highly-qualified scientists in Europe and the provision of corresponding support (allowances and research grants). The other is designed to ensure optimum utilization of the major scientific facilities available in Europe by enabling teams from other Member States to take advantage of existing under-used opportunities, at a particular site, on the basis of a minimum Community contribution to the operation costs of the installations concerned.

Similarly, the Commission has just announced a major Community action programme in education and training for technology (1986-1992), COMETT. This programme will be concerned with the promotion and establishment within the Community of close cooperation between universities and industy in an effort to ensure a better adaptation of primary and secondary education and the in-service training of workers to technological changes.

As part of this line of action, the Commission also intends to intensify its efforts to define ways and means of ensuring more favourable administrative and social conditions for the mobility of research workers.

III The Community Dimension: the Corporate Environment.

Today more than ever a dynamic innovation capacity is essential. At a time when a considerable effort is to be put into consolidating the technology community, it is therefore essential to strengthen the Innovation Community so as to ensure the survival and development of companies on changing markets and to improve the living conditions of men and women dependent on products and services that may or may not match their requirements (the Italian IRIS initiative (1) is directly relevant here).

It is clear that the Europeans do not have as good a grip on the innovation process as their main trading partners. These are often more efficient in turning scientific and technical results into commercial successes not only on their own marketplace but also on ours, which helps them to refinance their R&D and innovation work .

The marketplace is an essential component in innovation and the exploitation of research results. Here the continental dimension of the market is important since in effect the competitiveness of industry depends on it. As is emphasised in the Commission's memorandum to the European Council, although the Community has an internal market of about the same size as those of Japan and the United States, its market is still compartmentalised.

This lack of competitiveness was in the forefront of the Commission's thinking when it put forward in MIlan a general programme for the completion of the internal market which was welcomed by the European Council . in Milan. This programme contains activities essential to the development of research, the transfer of its results to the marketplace and cooperation between companies. The timetable is in keeping with the objectives to be attained.

---

(1) IRIS; Institute for Research on Informatics applied to Society

On the basis of the powers given it in the Treaty, the Community has for 28 years been working towards the achievement of the internal market; this has already led to the removal of numerous barriers to trade, the establishment of cooperation arrangements for companies and rules on public procurement.

In May 1984 the Council approved a standardisation policy both for traditional products and for information technology; in the latter field the Commission is endeavouring to give industry the benefit of common standards based on international standards.

This standardisation policy is also a way of opening up access to public contracts. There is no doubt that the opening-up of public procurement to the whole Community would help to provide support for new products. At Community level some discipline has already been established and reinforces international rules by ensuring the transparency of calls for tender and prohibiting any discrimination. The strengthening of this discipline is an objective that should go hand in hand with technological development and ensure full implementation of the recommendations on telecommunications.

Another factor that tends to wall off markets is the difference in national laws governing intellectual property. There is already the Luxemburg Convention on patents, the entry into force of which depends on three Member States. Aware of the special problems involved in protecting micro-circuits, biotechnology products and, in a different way, software, the Commission has started work in cooperation with Member State experts with a view to drafting precise proposals in the months ahead.

It was proposed as part of the EUREKA activities that a Eurotype product warrant be created which would give European high-tech companies preferential treatment. It would be worth exploring the possibility of devising a new mark that would certify conformity with European standards and would therefore be a proof of quality.

The internal market also means observing certain rules of the game. Competition policy and a policy to promote high technology can pursue the same objectives in so far as new technologies bring about more competition (innovative competition through new products and processes) and increased productivity. The Commission competition policy, therefore, is in favour of cooperation in R&D, specialisation, joint ventures and other means of promoting high technology.

The Commission will take steps to use the powers entrusted to it by the treaties to create an environment which encourages the promotion of research and development, and will set down guidelines accordingly.

Any Community scheme must also ensure the active participation by small businesses in the European R&D effort and see that countries at a medium level of scientific and technological development have access to major technological ventures.

The Commission will set about implementing the measures necessary to achieve these objectives such as developing scientific and technical infrastructures and improving the training of R&D personnel.

The instruments needed to carry out these various activities stem from the Treaty and are therefore intended to establish a preferential link between the Member States.

IV Links between community activities and EUREKA and Relations with European non-member states

At its foreign affairs meeting on 22 and 23 July 1985 the Council, "in response to the conclusions of the European Council in Milan and taking into account the progress made by the ad hoc Committee on EUREKA on 17 July in Paris, stressed the need to ensure coordination and cohesion between the work of this Committee and the work to be carried out at Community level to increase cooperation on technolo in Europe".

The first EUREKA projects are now being defined and all the countries that took part in the preparatory work for the Hannover intergovernmental conference agreed, together with the Presidency and the Commission, to pay close attention to ensuring this cohesion not only with Community projects but also with all European R&D activities.

In the Commission's view the EUREKA initiative is of considerable interest, to the extent that projects undertaken within this framework, and projects carried out in the Community context remain complementary and are seen to be so by industry, to whom clear guidelines will need to be given.

Thus, the Community will continue the development of major scientific and technological programmes in accordance with the objectives, criteria and priorities jointly laid down with the governments and industries of the Member States, the EUREKA projects being put into effect essentially on the basis of specific initiatives of firms or research centres wishing to be involved. These firms will supervise the projects and in most cases will control their financing.

The projects will generally concern subjects of advanced technology close to commercial application or meeting the needs of development of the European infrastructure and having transnational interest.

On this basis the Commission will examine together with the Member States, depending on the interest to the Community of the EUREKA projects which are adopted, possible Community participation in these projects.

The Community will, moreover, be able to contribute to the implementation of the EUREKA projects by seeing to the establishment of the large internal market (see above point) and by examining the possibility of making use of financial instruments such as the NCI or the EIB.

Relations with European non-member States

EUREKA projects give European non-member states the chance to collaborate on research and development programmes (on a project-by-project basis) with those Community countries taking part.

Furthermore, in line with the Luxemburg (1984) and Vienna (1985) political declarations, the Community should be at pains to ensure that the other European countries are associated with its activities to an increasing extent. For numerous reasons, it will be impossible to achieve a "scientific and technological Europe" as effectively as possible without their participation. The Commission has already, therefore, taken a number of steps towards the attainment of this objective and is making active efforts to reinforce them and to create special links (based on reciprocity) with a number of countries.

So far as scientific and technical cooperation is concerned, framework agrrements are shortly to be concluded with Sweden and Switzerland; others are being negotiated with Finland and Norway and the Commission has held exploratory talks with Austria for the same purpose.

Cooperation with non-Community European countries within COST - in progress since 1970 but not widely enough known - has proved fruitful. It has been instrumental in setting up a vast scientific and technical cooperation network for the implementation of variable-geometry projects in which non-member countries are associated with the Community.

In fact, up to now some 55 cooperation projects have been undertaken in the COST framework in fields as varied as transport, telecommunication, the environment, oceanography, etc.

The Commission is taking an active part in the current discussions with European non-member countries concerning the future of COST cooperation which must be preserved and developed on the basis of the priority objectives established at European level.

V Organisation of the Activities: the institutional Aspects and financing

The implementation of the European science and technology strategy on its new scale should not raise any fundamental problem.

There is a variety of methods by which Community R&D actions are implemented nowadays. Particularly noteworthy are projects carried out directly by Community laboratories and centres (direct action), those where the expense involved is shared with outside companies and laboratories (shared cost action), national programmes where the Commission has a coordinating role (concerted action), projects designed to promote scientific cooperation between researchers and laboratories (the Stimulation Action), the "Joint Undertakings", which currently exist in the nuclear field and finally "variable geometry" cooperation (including on the one hand supplementary EURATOM and EEC treaty programmes and on the other COST actions which involve non-member States). This list of support methods could be built on and supplemented by new ones answering to the needs of the European Technological Community.

Thus further methods could come to be defined, and in particular : joint undertakings, minority holdings, the creation of specialised agencies, the creation of multilateral associations (like the Airbus consortium).

Such an overall structure might make it possible, in a situation where there is broadly more flexibility, to evolve a large-scale European science and technology strategy defined and adopted by political agreement, combining for the benefit of all the participant states the advantages of joint action and "variable-geometry" projects.

1. Institutional aspects

One fundamental question remains, however. This concerns the rule that there must be unanimity in Community scientific and technical decisions, a rule which may prove a major obstacle, leading to paralysis.

The establishment of a scientific and technological community open to all European countries and "so designed as to allow Member States to reserve or restrict their participation to certain programmes only" [1] of itself means that there will have to be institutional changes at Community level.

---

[1] "... European Technology Community" (COM(85)350 final)

Proposals for changes to the Treaty have recently been made by the Commission and are already being examined with the Member States (Dondelinger group).

They are designed in particular to simplify and speed up Community decision-making procedures in the field of scientific research and technological development, which are currently subject to the unanimity rule.

The Commission believes that Community agreement on these changes is essential and is one of the keys to the effective establishment of a European scientific and technological community.

2. The financing of Community Actions

Implementing the strategies outlined in this document - indispensable to maintaining Europe's competitiveness in relation to its main competitors in world markets - will call for substantial financial resources.

At both national and Community level, the required support for scientific cooperation projects, whether industrial or intergovernmental, calls for resources commensurate with those that are or will be allocated by the main industrial powers involved in the present tidal wave of competition through innovation. The United States has firmly set its sights at a very high level.

Aware of this situation, the European Council has already acknowledged the need for a significant increase in Community RD&D funding at successive meetings held since June 1983.

This clear political stance should now be translated into solid guidelines, the indispensable basis of any realistic medium-term financial planning, which is in itself an essential precondition to the establishment of the European Technological Community.

V Conclusions

The Commission asks the Council for its comments on this outline approach and in particular to reflect on how it might tackle the financial problems before the end of the year so that this approach might be implemented.