COUNCIL DECISION

of 14 March 1989

on a specific research and technological development programme in the field of industrial manufacturing technologies and advanced materials applications (Brite/Euram) (1989 to 1992)

(89/237/EEC)

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community and in particular Article 130q (2) thereof,

Having regard to the proposal from the Commission (1),

In cooperation with the European Parliament (2),

Having regard to the opinion of the Economic and Social Committee (3),

Whereas Article 130k of the Treaty states that the framework programme is to be implemented through specific programmes developed within each activity;

Whereas, by its Decision 87/516/Euratom, EEC (4), as amended by Decision 88/193/EEC, Euratom (5), the Council adopted a framework programme for Community research and technological development (1987 to 1991) providing for activities in the field of science and technology for manufacturing industry and advanced materials;

Whereas that Decision provides that a particular aim of Community research shall be to strengthen the scientific and technological basis of European industry and to encourage it to become more competitive at the international level and that Community action is justified where research contributes *inter alia* to the strengthening of the economic and social cohesion of the Community and the promotion of its overall harmonious development, while being consistent with the pursuit of scientific and technical quality; whereas it is intended that the Brite/Euram programme should contribute to the achievement of these objectives;

Whereas by Decision 85/196/EEC (6), as amended by Decision 88/108/EEC (7), the Council adopted the first multiannual research and development programme for the European Economic Community in the fields of basic technological research and the application of new technologies (Brite) (1985 to 1988);

Whereas by Decision 86/235/EEC (8) the Council adopted a research programme on materials (raw materials and advanced materials) (1986 to 1989);

Whereas in cases where industrial progress is hampered by lack of basic knowledge, it is necessary to support focused fundamental research projects;

Whereas it is necessary to react adequately to the interest shown by the industry in transnational cooperation;

Whereas it is necessary to involve small and medium-sized enterprises (SMEs) to the maximum extent possible in the development of industrial technologies by taking into account their particular and specific requirements while respecting the objective of the scientific and technical quality of the programme;

Whereas it is appropriate to undertake precompetitive research in aeronautics in order to meet medium and long-term technology requirements; whereas such research should take particular account of economic, safety and environmental aspects;

Whereas it is necessary to underline the industrial and transnational nature of the programme by requiring applied research projects with at least two industrial partners from two different Member States;

Whereas it is necessary to ensure the industrial nature of the programme by requiring focused fundamental research projects with industrial endorsement from at least tow independent enterprises;

Whereas organizations from non-Community European countries which have concluded scientific and technical cooperation agreements with the Community in industrially-oriented research and development projects may, by participating under appropriate conditions, contribute to the competitiveness of manufacturing industry as a whole;

Whereas the implementation of concerted actions in the COST framework is an essential element to complement industrially-oriented research and development projects;

Whereas the Scientific and Technical Research Committee (Crest) has expressed its opinion on the Commission proposal,

(1) OJ No C 228, 3. 9. 1988, p. 3 and OJ No C 19, 25. 1. 1989, p. 10.
(2) OJ No C 326, 19. 12. 1988, p. 5 and OJ No 69, 20. 3. 1989.
(3) OJ No C 56, 6. 3. 1989, p. 14 and opinion delivered on 22 February 1989 (not yet published in the Official Journal).
(4) OJ No L 302, 24. 10. 1987, p. 1.
(5) OJ No L 89, 6. 4. 1988, p. 35.
(6) OJ No L 83, 25. 3. 1985, p. 8.
(7) OJ No L 59, 4. 3. 1988, p. 23.
(8) OJ No L 159, 14. 6. 1986, p. 36.

HAS ADOPTED THIS DECISION:

Article 1

A specific research and technological development programme for the European Economic Community in the fields of industrial manufacturing technologies and advanced materials applications, as defined in Annex I, is hereby adopted for a period of four years, from 1 January 1989.

Article 2

The funds estimated as necessary for the execution of the programme amount to ECU 499,5 million, including expenditure on staff whose cost shall not exceed 4,5 % of the Community contribution.

An indicative internal allocation of these funds is set out in Annex IV.

Article 3

1. Detailed rules for the implementation of the programme and the rate of the Community's financial participation are set out in Annex II.

Article 4

1. During the third year of the implementation, the Commission shall review the programme and send a report on the results of its review to the European Parliament and to the Council. This report shall be accompanied, where necessary, by proposals for the amendment or extension of the programme.

In respect of research relating to aeronautics, a review will be carried out during the second year.

2. At the end of the programme, an evaluation of the results achieved shall be conducted by the Commission which shall report thereon to the European Parliament and to the Council.

3. The abovementioned reports shall be established having regard to the objectives set out in Annex III to this Decision and in accordance with Article 2 (2) of the Framework Programme set out in Decision 87/516/Euratom, EEC.

Article 5

1. The Commission shall be responsible for the execution of the programme.

2. The Commission shall be assisted by a Committee, hereinafter referred to as 'the Committee', composed of the representatives of the Member States and chaired by the representative of the Commission.

3. Contracts concluded by the Commission shall govern the rights and obligations of each party, in particular arrangements for the dissemination, protection and exploitation of research results.

Article 6

1. In respect of research to be undertaken under Areas 1 to 4 of Annex I, the following procedure shall apply:

(i) the representative of the Commission shall submit to the Committee a draft of the measures to be taken. The Committee shall deliver its opinion within a time limit which the Chairman may lay down according to urgency of the matter, if necessary by taking a vote;

(ii) the opinion shall be recorded in the minutes of the Committee; in addition, each Member State shall have the right to have its opinion recorded in the minutes;

(iii) the Commission shall take the utmost account of the opinion delivered by the Committee. It shall inform the Committee of the manner in which its opinion has been taken into account.

2. In respect of research to be undertaken under Area 5 of Annex I, the following procedure shall apply:

(i) the representative of the Commission shall submit to the Committee a draft of the measures to be taken. The Committee shall deliver its opinion on the draft within a time limit which the Chairman may lay down according to the urgency of the matter. The opinion shall be delivered by the majority laid down in Article 148 (2) of the Treaty in the case of decisions which the Council is required to adopt on a proposal from the Commission. The votes of the representatives of the Member States within the Committee shall be weighted in the manner set out in that Article. The Chairman shall not vote;

(ii) the Commission shall adopt the measures envisaged if they are in accordance with the opinion of the Committee;

(iii) if the measures envisaged are not in accordance with the opinion of the Committee, or if no opinion is delivered, the Commission shall, without delay, submit to the Council a proposal relating to the measures to be taken. The Council shall act by a qualified majority;

(iv) if, on the expiry of a period which may in no case exceed two months from the date of referral to the Council, the Council has not acted, the proposed measures shall be adopted by the Commission.

Article 7

The procedures laid down in Article 6 (1) and (2), shall apply, subject to the provisions of those paragraphs, in particular to:

— the establishment of the work plan for research to be carried out under Area 5 of Annex I,

— the scientific and technical assessment of proposals received,

— any departure from the rules for implementation set out at Annex II,

— the participation in any project by non-Community organisations or enterprises referred to in Article 8,

— any adaptation of the internal indicative allocation of funds set out in Annex IV,

— the measures to be undertaken to evaluate the programme,

— arrangements for the dissemination, protection and exploitation of the results of research carried out under the programme.

Article 8

1. Where framework agreements for scientific and technical cooperation between non-Community European countries and the European Communities have been concluded, organizations and enterprises established in those countries may, on the basis of the criterion of mutual advantage, become partners in a project undertaken within the programme.

2. No contractor based outside the Community and participating as a partner in a project undertaken under the programme may benefit from the Community financing of the programme. The contractor shall contribute to the general administration costs.

Article 9

The Commission shall ensure that procedures are set up to allow for appropriate cooperation with COST activities related to the areas of research covered by the programme, by ensuring regular exchanges of information between the Committee and the relevant COST Management Committee.

Article 10

This Decision is addressed to the Member States.

Done at Brussels, 14 March 1989.

For the Council

The President

J. SOLANA MADARIAGA

ANNEX I

PROGRAMME SUMMARY AND OBJECTIVES

1. ADVANCED MATERIALS TECHNOLOGIES

The work in this area will focus on the development of improved or new materials and material processing for a wide range of possible applications except those directly related to information technology (IT) covered in Esprit (1) adopted by Decision 84/130/EEC (2),

including in particular:

1.1. Metallic materials and metallic matrix composites

Objectives:

— extended working life of components,

— higher operating temperatures for increased thermal efficiency,

— better and more effective material processing techniques.

1.2. Materials for magnetic, optical, electrical and superconducting applications

Objectives:

— improved materials and materials processing for optical magnetic, electrical and superconducting applications.

1.3. High temperature non-metallic materials

Objectives:

— design methodologies for products based on ceramics, glasses and amorphous materials,

— improved monolithic and ceramic composites and metal/ceramic interfaces for industrial applications,

— better processing techniques and quality control strategies.

1.4. Polymers and organic matrix composites

Objectives:

— development of polymers for specific applications,

— more cost effective process techniques for parts made from polymer and polymer matrix composites,

— design rules for the specification and manufacture of engineering polymers and composites,

— new polymers with improved recycling attributes,

— improved product assurance techniques.

1.5. Materials for specialized applications

Objectives:

— improved materials and their processing for specialized applications.

2. DESIGN METHODOLOGY AND ASSURANCE FOR PRODUCTS AND PROCESSES

The development of techniques to improve product quality and the reliability and maintainability of structures and manufacturing systems by clarification of the design aims for both product and process, and by refinement of the criteria against which the attributes are measured. The exploitation of materials for application in sensors, and the reduction in the whole life costs of sensors are also included in this section.

(1) Developments of materials already covered by Esprit are, for instance, dealing with magnetic, magneto-optical, optical thin films for sensors, recording media and heads, optical layers and specific materials for opto-electronics, ceramics and polymers for IC packaging and specific substrates, superconducting thin films for low current applications and devices.

(2) OJ No L 67, 9. 3. 1984, p. 54.

This will complement work in Community IT programmes, where on-line control is treated, including monitoring and diagnostics, predictive maintenance and quality assurance,

including in particular:

2.1. Quality, reliability and maintainability in industry

Objectives:

— improved performance measurement for manufacturing operations in a wide variety of industries,

— improved and more predictable physical and environmental behaviour of products,

— improved quality control strategies,

— design rules for reliability and maintainability of components, structures and systems including machinery operating under varying conditions.

2.2. Process and product assurance

Objectives:

— reduction of whole life costs of sensor systems for process control,

— exploitation of materials properties for applications in sensors,

— use of advanced measurement techniques for more cost-effective examination of topology,

— improved energy control for industrial applications,

— improved non-destructive testing methods for product assurance.

3. APPLICATION OF MANUFACTURING TECHNOLOGIES

Here the task is to identify and address the needs of manufacturing industry and particularly the less advanced sectors, many of which have a major part made up of SMEs. It is to be expected that modelling of physical processes will be a valuable instrument for progress. Also addressed is the challenge to the industries based on the use of flexible materials. The work will mainly focus on product and process development, transferring and adapting technology already used in other sectors. This should complement work in Esprit where IT systems for advanced manufacturing and CIM are being developed,

including in particular:

3.1. Advancing manufacturing practices

Objectives:

— identifying means for improving manufacturing practices in specific sectors,

— transfer and adaptation of technology already used in other sectors.

3.2. Manufacturing process for flexible materials

Objectives:

— increased process flexibility,

— reduced waste of material,

— improved process and product quality.

4. TECHNOLOGIES FOR MANUFACTURING PROCESSES

Improved techniques for shaping, joining and assembly, surface treatment, chemical processes and particle technology are fundamental needs for industry. Advancement of these processes is essential for securing manufacturing competitiveness,

including in particular:

4.1. **Surface techniques**

Objectives:

— cost-effective surface treatments for industrial applications,

— techniques for quality assurance and control of the treatment process.

4.2. **Shaping, assembly and joining**

Objectives:

— improved methodologies for shaping processes and assembly,

— improved joining techniques to improve reliability and reduce defect levels,

— methods for testing welded and bonded joints to improve reliability of results and service predictability,

— design methodology for joining,

— better understanding of beam/workpiece interactions for industrial power beam processes.

4.3. **Chemical processes**

Objectives:

— improved predictability and yield in chemical processes,

— membrane materials with improved characteristics,

— improved performance of membrane processes,

— new systems for separation in hostile environments.

4.4. **Particle and powder processes**

Objectives:

— improved techniques for particle production to optimize produce shape, structure and stability,

— cost-effective techniques for particle categorization and process performance,

— better approaches to handling and separation,

— cost-effective routes for small lots of high quality powder.

5. SPECIFIC ACTIVITIES RELATING TO AERONAUTICS

This section covers precompetitive research in technological areas which are of primary relevance to aeronautics (in particular aeroplanes and helicopters) and are not yet covered in other programme areas.

5.1. **Aerodynamics**

Objectives:

— analysis and optimization of configurations for supersonic aircraft, including an estimation of aerothermodynamic heat loads,

— investigation of laminar flow technology,

— development of numerical methods,

— integration of computerized design technologies.

5.2. **Acoustics**

Objectives:

— noise source identification, prediction and reduction,

— basic investigation of acoustic fatigue and related damage tolerance on advanced composites,

— investigation of different construction methods,

— development and application of simulation models for response calculations under selected acoustic loads.

5.3. **Airborne systems and equipment**

Objectives:

— integration and operation of modern systems and equipment and corresponding new architectures,

— investigations concerning the use of onboard intelligent knowledge based systems (IKBS),

— investigations into the concept of the 'All Electric Aircraft'.

5.4. **Propulsion Systems**

Objectives:

— integration of advanced propeller and propeller-rotor systems,

— provision of mathematical models for different design evaluation,

— specification and design of wind tunnel models and their components,

— specific aspects of air-breathing engine combustion.

ANNEX II

RULES FOR IMPLEMENTATION OF THE PROGRAMME AND THE COMMUNITY'S RATE OF FINANCIAL PARTICIPATION

The Commission shall implement the programme on the basis of the scientific and technical content set out in detail in Annex I.

The Commission shall distribute, in all Community languages, information packs to accompany the invitation to participate in order to guarantee equal opportunities for the undertakings, universities and research centres in the Member States.

The programme is carried out principally by means of shared-cost research contracts to be awarded following a selection procedure based on calls for proposals published in the *Official Journal of the European Communities*.

Participants may be industrial organizations, research institutes and universities, established in the Community. Each contractor will be expected to make a significant contribution to projects. The contractors shall be expected to bear a substantial proportion of the costs, 50 % of which shall normally be borne by the Community.

Industrial applied research

The principal form of support for industrial applied research of a precompetitive character will be through shared-cost action. At least two industrial enterprises from different Member States and independent of each other must take part in each project. Each party is expected to make a significant contribution to the project. The contracting parties shall bear a substantial part of the costs, up to 50 % of which shall, as a rule, be borne by the Community. Alternatively, in respect of universities and research institutes carrying out projects, the Community may, within the abovementioned limits of its financial contribution, bear up to 100 % of the additional expenditure involved.

Recognizing the important role of SMEs in developing the manufacturing base of the Community and the merits of their participation in the programme, the Commission will examine in consultation with the Committee how research organizations can best act within the programme to meet the R & D needs of SMEs. Projects should include at least 10 man-years of activity, the realistic minimum for an effective collaborative project, and the total projects costs should fall in the range ECU 1 to 3 million.

Focused fundamental research

Focused fundamental research projects shall involve at least two partners established in different Member States. When the partners are universities or research institutes, the project should be endorsed by at least two legally independent industrial enterprises and the Community could bear up to 100 % of the marginal costs of universities and research institutes. Projects should include at least 10 man-years of activity and fall in the range of ECU 0,4 to 1 million total project costs.

Feasibility awards for SMEs

The Commission will introduce a pilot scheme of feasibility awards aimed at assisting SMEs establish the feasibility of a device, process or concept as a means of enhancing their stature in finding a partner in a subsequent call for proposals under the shared cost action. The Commission will support up to 75 % (maximum ECU 25 000) of the cost of research lasting up to six months. High standards of evaluation will ensure that the awards are highly competitive and recognised as prestigious.

Coordinated activities

In cases where work, supported by national funds or entirely privately funded, is already going on, the Commission's role may be limited to simply organizing the coordination of the work and the Community funding confined to covering the cost of such coordination activities. However, in certain cases where it is clear that strategically important work requires more than simply coordination, the Commission could, in consultation with the Committee, consider a higher Community funding.

Research relating to aeronautics

A work programme will be established to define precise objectives and determine priority themes for research in Area 5 of Annex I.

The Commission shall establish calls for proposals for projects in this area on the basis of the work programme.

Projects in the field of aeronautics must include two industrial enterprises from different Member States. Particular attention will be paid to ensuring:

— the complementarity of research carried out in this area with activities carried out under the programmes of the Member States and those carried out in other fora of European transnational cooperation, including Eureka,

— the participation of research institutes, universities and small and medium-sized enterprises,

— the maximum benefit to technological areas outside the aeronautics sector.

The rules relating to the financing of industrial applied research and focused fundamental research shall apply as appropriate to the financing of research projects relating to aeronautics.

ANNEX III

PROGRAMME EVALUATION OBJECTIVES AND CRITERIA

The results against which the programme should be evaluated must reflect its objectives and the wider objectives of the framework programme.

1. As the principal objective is to enhance the competitive position of the Community's manufacturing industries, the evaluation should determine:

   — the extent to which the projects were selected against credible and measurable industrial criteria,

   — the extent to which substantial product or process development has resulted from the work supported.

2. A further objective is to encourage trans-frontier collaboration in strategic industrial research. The evaluation should determine:

   — to what extent, before and after project completion, there were continuing links between partners for research, development, manufacturing, marketing or staff training.

3. A further programme objective is to encourage transfer of technology across Community frontiers and between sectors, particularly those with a high predominance of SMEs. The evaluation should determine:

   — the extent to which SMEs have exploited technologies and new materials arising from successfully completed projects,

   — the extent to which accomplishments are protected by patent action or are disseminated to raise awareness in the European research and technology Community.

   As far as research relating to aeronautics is concerned, the evaluation will also include, in particular, the following criteria:

   — the contribution of such research to the technological competitveness of the European aeronautical industry,

   — the benefits accruing to technological areas other than aeronautics,

   — the added value of dedicated Community research in this area.

4. In the wider context of the framework programme, the evaluation shall be conducted in the light of all the selection criteria set out in Annex III of the framework programme set out in Decision 87/516/Euratom, EEC which include that of contributing to the strengthening of the economic and social cohesion of the Community.

   This evaluation will be undertaken by independent evaluators.

ANNEX IV

INDICATIVE INTERNAL ALLOCATION OF FUNDS

	%
I. RESEARCH AND DEVELOPMENT SECTORS	
1. Advanced materials technologies	28
2. Design methodology and assurance for products and processes	19
3. Application of manufacturing technologies	19
4. Technologies for manufacturing processes	20
5. Specific activities relating to aeronautics	7
II. STAFF AND ADMINISTRATIVE COSTS	
Staff costs	4,5
Administrative costs	2,5
	100,0

Between 7 % and 10 % of the budget shall be available for fundamental research in the above areas where industrial progress is impeded by gaps in basic scientific knowledge.

Up to 0,45 % of the available budget may be devoted to the feasibility awards referred to in Annex II.