

EUROPEAN PARLIAMENT

Working Documents

1983 - 1984

6 May 1983

DOCUMENT 1-270/83

REPORT

drawn up on behalf of the Committee on Energy and
Research

on the proposal from the Commission of the European
Communities to the Council (Doc. 1-1096/82 -
COM(82) 808 final) for a decision adopting an
experimental Community action to stimulate the
efficacy of the European Economic Community's
scientific and technical potential

Rapporteur: Mr C. MARKOPOULOS

By letter of 20 December 1982, the Council of the European Communities requested the European Parliament to deliver an opinion on a proposal from the Commission of the European Communities for a Council decision (EEC) adopting an experimental Community action to stimulate the efficacy of the European Economic Community's scientific and technical potential.

On 12 January 1983, the President of the European Parliament referred this proposal to the Committee on Energy and Research as the committee responsible and to the Committee on Budgets for an opinion.

At its meeting of 19 January 1983, the Committee on Energy and Research appointed Mr MARKOPOULOS rapporteur.

The committee considered the Commission's proposal and the draft report at its meetings of 27 January 1983, 23 March 1983 and 28 April 1983.

At the last meeting, it adopted the draft report and recommended that Parliament should approve the Commission's proposal with the following amendments.

The Commission notified the committee that it was prepared to accept the amendments, although for administrative reasons it had reservations about Amendments Nos. 2 and 3.

The committee then adopted the motion for a resolution as a whole by 12 votes to 7 with 2 abstentions.

The following took part in the vote: Mr Seligman, acting chairman; Mrs Walz, chairman; Mr Markopoulos, rapporteur; Mr Fuchs, Mr Gauthier, Mr Ghergo (deputizing for Mr Pedini), Mr Halligan, Mrs Nikolaou (deputizing for Mrs Lizin), Mr Pattison (deputizing for Mr Percheron), Mr Petronio, Mrs Phlix, Mr Poniridis (deputizing for Mr Schmid), Mr Protopapadakis, Mr Purvis, Mr Rinsche, Mr Sälzer, Mr Sassano, Sir Peter Vanneck, Mr Veronesi, Mrs Viehoff (deputizing for Mrs Théobald-Paoli) and Mr Ziagas (deputizing for Mr Rogalla).

The opinion of the Committee on Budgets is attached.

The report was submitted on 2 May 1983.

C O N T E N T S

	<u>Page</u>
Amendments to the Commission's proposal	5
A. MOTION FOR A RESOLUTION	10
B. EXPLANATORY STATEMENT	13
I. Introduction	13
II. Causes of, and factors in, European backwardness	15
A. Historical reasons	15
B. Objective reasons	16
III. Measures to enhance the effectiveness of research	20
IV. Criticism of the experimental action proposed by the Commission	22
 ANNEX	 25
 Opinion of the Committee on Budgets	 34

The Committee on Energy and Research hereby submits to the European Parliament the following amendments to the Commission's proposal and motion for a resolution together with explanatory statement:

- I. Proposal from the Commission to the Council for a Council decision adopting an experimental Community action to stimulate the efficacy of the European Economic Community's scientific and technical potential (COM(82) 808 final)

Amendments tabled by the Committee
on Energy and Research

Text proposed by the Commission

Preamble and recitals
unchanged

Amendment No. 1

An experimental action to stimulate the efficacy of the European Economic Community's scientific and technical potential, as set out in the Annex, is hereby adopted for a two-year period commencing on 1 January 1983. The experimental action shall consist of activities with the purpose of testing approaches to and methods of stimulation in the Community, in scientific and technical sectors of special and topical interest; as a guideline, seven sectors are listed in the Annex; to these may be added others suggested by consultation with scientific institutions.

Article 1

An experimental action to stimulate the efficacy of the European Economic Community's scientific and technical potential, as set out in the Annex, is hereby adopted for a two-year period commencing on 1 January 1983. The experimental action shall consist of activities with the purpose of testing approaches to and methods of stimulation in the Community, basically within the seven fields defined in the Annex.

Amendments tabled by the Committee
on Energy and Research

Amendment No. 2

The amount required to carry out the experimental activities is estimated at 7 million ECU, including expenditure on a staff of two (1A + 1C).

Amendment No. 3

The Commission shall be responsible for the implementation of the action, by means of research allocations, grants to help laboratory twinning, and the mobility and interchange of research workers around the Community. It shall be assisted in this task by a small awards committee, which it shall set up for the purpose, made up of not more than five eminent personalities in the field of science and technology.

Amendment No. 4

Article 3(a) (new)

To keep scientific circles adequately informed and to assemble a wide range of ideas, the Commission shall use exceptional measures (seminars, meetings of researchers from different institutions, etc.) in addition to the traditional, bureaucratic ones; this will make it possible to identify areas of research more directed towards practical application and important sectors for collaboration between existing ones.

Text proposed by the Commission

Article 2

The amount required to carry out the experimental activities is estimated at 7 million ECU, including expenditure on a staff of three.

Article 3

The Commission shall be responsible for the implementation of the action, by means of research allocations, grants to help laboratory twinning, development contracts, grants to assist research teams, seminars and courses. It shall be assisted in this task by an advisory committee (CODEST: Committee for the European Development of Science and Technology) which it shall set up for the purpose, made up of eminent personalities in the field of science and technology, of recognized standing, active in national research and development systems and aware of national policies, as well as by a group of consultants.

Amendments tabled by the Committee
on Energy and Research

Text proposed by the Commission

Articles 4 and 5 unchanged
Annex A, paragraph 1 unchanged

Amendment No. 5

Annex A (paragraph 2)

In these fields different kinds of illustrative stimulation activities are to be tried out: research allocations, laboratory twinning, mobility of research workers, subsidies for research teams. On the other hand a specific project of a multidisciplinary nature will be started up, to enable joint working by teams in different countries to bring it to successful conclusion.

In these fields different kinds of illustrative stimulation activities are to be tried out: research allocations, laboratory twinning, seminars or workshops, subsidies for research teams. On the other hand a specific project of a multidisciplinary nature will be started up, to enable joint working by teams in different countries to bring it to successful conclusion.

Paragraphs 3 and 4 unchanged

Annex B (Financial record)
Paragraphs 1 and 2 unchanged

Amendment No. 6

Delete the indent 'workshops, seminars'.

Delete the phrase 'contribution to the dissemination of the best available knowledge and the development of contacts between researchers.'

Annex B (paragraph 3)

3. Description of the action

The stimulation action consists of carrying out various activities of an incentive nature

- research allocations:

Payment of an allowance to cover travel, lodging and research expenses of scientists who, during a stay at a foreign laboratory (within the EEC) are to make use of new knowledge to carry out research into a complex problem; or the provision of complementary support to a sub-critical team,

- workshops, seminars:

contribution to the dissemination of the best available knowledge and the development of contacts between researchers,

- twinning of laboratories in different countries:

making it possible for researchers in various countries of the Community who are working in parallel in an advanced field to get together and thus reach 'critical' numbers; in order to do this it will be necessary to grant subsidies making it possible for

Amendments tabled by the Committee
on Energy and Research

Text proposed by the Commission

researchers to meet, carry out joint experiments and exchange results,
- the development of multidisciplinary and multinational operations:

to make it possible, via development contracts, to bring together the best available skilled persons in various countries and various disciplines in order to achieve a pre-determined objective.

The experimental action 1984-1987 will be a test and pilot experiment phase for these new activities.

Its objective will be:

- set up the structures and procedures for defining and selecting activities and interventions;
- set up and calibrate the intervention mechanisms, making use of specific examples by developing some limited scale experiments.

Rest unchanged

MOTION FOR A RESOLUTION

closing the procedure for consultation of the European Parliament on the proposal from the Commission of the European Communities to the Council for a decision adopting an experimental Community action to stimulate the efficacy of the European Economic Community's scientific and technical potential

The European Parliament,

- having regard to the proposal from the Commission of the European Communities (COM(82) 808 final)¹,
 - having been consulted by the Council pursuant to Article 235 of the EEC Treaty (Doc. 1-1096/82),
 - having regard to the communications from the Commission to the Council COM(81) 574 final, COM(82) 322 final and COM(82) 493 final,
 - having regard to the communication from the Commission to the Council on a European scientific and technical strategy (framework programme 1984-1987, COM(82) 865 final),
 - having regard to the report by Mr Rolf Linkohr on the common research policy: problems and perspectives (Doc. 1-654/82),
 - having regard to the report of the Committee on Energy and Research and the opinion of the Committee on Budgets (Doc. 1-270/83),
 - having regard to the result of the votes on the Commission's proposal,
- A. having regard to the proceedings of the conference on research and development within the European Economic Community held in Strasbourg from 20 to 22.10.1980,
- B. noting that, although the Community's scientific and technical potential is both qualitatively and quantitatively high, the efficacy of its scientific and technological research systems is limited, mainly in regard to the ability to commercialize the often useful and innovative results of the research,

¹ OJ No. C 337, 23.12.1982, p. 6

- C. noting that considerable scientific potential remains unexploited and that efforts will have to be made as soon as possible to develop it and incorporate it into the overall scientific system which makes its contribution to the interests of the peoples and countries of the Community,
 - D. believing that the development of better research coordination systems at Community level will enhance the efficacy of the Community's scientific and technical potential, so long as they do not inhibit enterprise with a heavy load of bureaucratic intervention,
 - E. noting that time, money and resources are being squandered on disconnected, multiple, parallel and duplicated research in various Community Member States, and that efforts must be made with the least possible delay to coordinate such activities with a view to making them more productive,
 - F. considering that measures for enhancing the efficacy of the Community's scientific and technical potential must be taken, with a view to improving the Community's effectiveness in the technological and industrial sectors as quickly as possible,
 - G. hoping that such strengthening measures will be a first step towards capitalizing fully on the best aspects and programmes in Member States and so achieve timeouscommercial advantage,
1. Urges that this programme should concentrate on the mobility of, and cooperation between, individual researchers and teams of researchers in the chosen areas of science and technology so as to maximize the Community's scientific and technological research potential;
 2. Defines the basic objectives of the experimental measures as follows:
 - (a) to increase the competitiveness of the scientific and technological sectors and hence of the Community's industrial and services sectors;
 - (b) to coordinate research and technology programmes where this is patently beneficial, but bearing in mind that competition between research teams can often produce useful results more quickly;
 - (c) to contribute to raising the level of the least developed Member States of the Community;

- (d) to contribute to realizing the scientific potential of the Community and particularly that of young scientists;
3. Considers that the most useful contribution would be to encourage cross-fertilization between, and strengthening of, Community research teams by means of promoting and supporting exchanges of researchers and joint ventures;
 4. Calls for the taking of all such measures as will enable direct contact to be made between scientists working in the same field but in different laboratories, institutes or universities in the ten Member States of the Community, namely by the adoption of specific measures to establish immediate post-graduate study schemes for those constituting this scientific potential and to ensure the rapid dissemination of information by reciprocal visits to related laboratories and by scholarships to create employment openings for such persons;
 5. Proposes that the programme of experimentation to enhance the efficacy of the Community's scientific and technical potential should be focussed in the first instance on the seven sectors referred to in the scientific annex; that the experimental measures should run for a period of two years as from 1 January 1983;
 6. Suggests that, if the scheme is considered primarily as one of personnel mobility by way of scholarships and meeting necessary costs, the staffing can be restricted to two persons (1A, 1C) to administer the scheme;
 7. Similarly there is no need for an advisory committee and a consultancy group, as envisaged in the proposal, and suggests instead a small, distinguished and independent awards panel to select the most deserving proposals within the programme's guidelines;
 8. Agrees with the proposal in Article 4 of the proposal for a Council decision that an evaluation of the programme should be made at the end of the first year of activity (and at the end of each year thereafter), including a full listing of the projects supported;
 9. Instructs its President to forward to the Commission and the Council, as Parliament's opinion, the Commission's proposal as voted by Parliament and the corresponding resolution.

EXPLANATORY STATEMENTI. Introduction

It is generally accepted that the European Community, as a single economic entity, cannot ensure either its economic or its social progress unless it strengthens its competitiveness at all levels. One such level - if not the most important - is certainly that of industry, which, without any doubt, if it is to sustain its momentum, must keep right up to date with the rapid international developments taking place in technology.

Moreover, it is well known that if the results of research are to be put to immediate use, and if industry is to have any chance of adapting to constantly developing technology, the skills and opportunities afforded by the entire scientific and technical potential of all the Community Member States must be exploited, in conjunction with overall organization and full coordination of the way that potential works, functions and is deployed within the confines of the Community.

Finally, it is well known that the Community possesses a scientific and technical potential of considerable size, but also - and more importantly - of high quality, whereas every day it is noted and acknowledged that, for various reasons, there are weaknesses in the coordination of research and, generally speaking, in the way it is organized, as also in the way in which the development and use of research findings is organized. There are weaknesses, too, in the method of proceeding from results to their application, so that in the end very often the research is rendered ineffective, and, what is more, the research efforts of this qualitatively and quantitatively high-level scientific and technical potential of the Community become unexploitable.

Consequently, if Europe is to survive at all as a special entity, it is essential, but also unavoidable, that some way of remedying these weaknesses be found. The aim must be to create interdependent scientific, technological and industrial structures capable of increasing their competitiveness in the shortest possible time and of changing the defensive stance they currently adopt towards the other two great economic entities, the USA and Japan, into an offensive one.

The report which follows basically examines:

- a) the principal reasons for the weaknesses of the Community which make for a general backwardness in the effectiveness of research, and
- b) the ways in which these reasons must be expunged so that research becomes more effective and its results immediately exploitable.

II. Causes of, and factors in, European backwardness

The reasons which have caused European research and development to put up a far-from-vigorous response to the challenges of modern technology, and have made it less competitive in the face of its main industrial rivals, can be summed up under two main headings: the historical, with their roots in the immediate post-war years, and the objective, relating to developments in the present day.

A. Historical reasons

The term 'historical' is used to refer to all the reasons deriving from the adverse effects of the 2nd World War on the European continent, as well as those which spring from the continent's special peculiarities, the legacy of which continues to affect our present-day condition. These are:

1. The difference in the economic and industrial position between Europe and the USA at the end of the 2nd World War. The end of the war saw a weak and almost completely destroyed Europe trying to get back on its feet, recover economically and resume its accustomed pace, relying, on the one hand, on super-human efforts and work by its human potential and, on the other, on economic aid from abroad. Meanwhile the United States, its industry virtually unscathed, began to take the lead in the technological revolution which had already got under way.
2. The dependence which European states acquired after the 2nd World War and still maintain, either politically, with repercussions on institutional changes and decisions, or economically, with the consequence that Europe itself cannot control and determine its own development.

This dependence must be taken to include the energy problem, which has reached crisis proportions, either through an accumulation of mistakes in Europe's energy policies, or through the imposition of policies deriving from its dependence.

3. The leaching away of its scientific potential during and after the war and the direct exploitation of the achievements of European brain-power by the USA.
4. The lack of European homogeneity, a natural consequence of there being so many nationalities, unlike the USA or Japan, where the human factor is homogeneous and there is a single state which is able to set up a single, compact system of research and development. This fact has worked, and continues to work, with a multiplying effect, against every European attempt at technological development.

5. The social stagnation caused by an immovable and impenetrable university hierarchy is one of the reasons for the brain drain, especially among young researchers. In the USA a young scientist of quality is taken off the usual circuit and gets the financial and human resources to develop his ideas. Europe must provide similar opportunities if it wants to hold onto its valuable resources.

6. The divergent rates of development at almost all levels by European states in the post-war years, an inevitable consequence of the different historical, national and social complexion of each state. This lack of uniformity explains why today the Member States of the Community find themselves on different rungs of the technological and industrial development ladder.

B. Objective reasons

The term 'objective' is used to describe the reasons which are, in the present day, objectively speaking, obstacles to the effectiveness and exploitation of research, whether they have historical causes or have emerged in the course of developments leading up to the present-day situation. They are:

1. The inability of the structures in a fair number of Community Member States to adapt to the rapid present-day advances in science and technology. There is no doubt that the rate at which technology advances today cannot be determined by a single entity such as Europe, nor can a single entity put a brake on it, even if it wants to. The international character of science, the free movement of ideas despite a number of cases in which achievements have been jealously guarded by isolated groups or states, the free publication and circulation of research work and the capacity of organizations or states other than those which have achieved research results to adopt them - all this has created an international network of scientific interdependence, and anyone incapable of adapting to it remains permanently outside it, with ever-diminishing chances of getting back in. The Community, unfortunately, has so far proved incapable of shaping its structures in such a way as to be able to make immediate use of advances in science deriving from competitive forces; yet to those same forces, it has generously handed over its own significant scientific achievements, either through an inability to protect them, to make the best use of them, or to exploit them directly,

2. The multiplicity of activities by numerically small groupings is an important factor in preventing the systematization of research. In each of the Community Member States it is natural, given that up to the present there has not been sufficient coordination, for there to be a growing fragmentation of the scientific potential in all sectors of interest in science and technology. However, this leads to the splintering of a state's scientific activities and consequently reduces its ability to give aid to scientific programmes, whether from the point of view of scientific potential or from the economic angle.

3. The similarity and duplication of research programmes and activities within the Community. A consequence of the preceding reason, and likewise of the plurality of nations in Europe, is the existence of similar programmes in practically all Member States. Programmes covering the same area and with the same end in view are being pursued simultaneously in all the Member States and, in most of them, by more than one research team, each team working independently of the others. Money is obviously being wasted; even more obvious, though, is the waste of human potential, at a time when the concept of a common approach to scientific and technical problems is being promoted by a Community Europe. The multiplicity of operations and resources, the splintering of operations, the dispersion of effort, all these make it clear that Europe is debasing its own scientific effectiveness in the face of the Community's two great competitors, who, because they show cohesion, are able to develop uniform programming and decide on spheres of activity on which scientific potential and resources are to be directly focussed, while avoiding pointless duplication.

4. The lack of correctly structured links between state institutions and industry undoubtedly leads to a weakening of the research result application and exploitation relationship.

It is a well-known fact that in many Member States the development of links between the public-sector bodies responsible for the various research efforts, and industrial production, which essentially is directed by private initiative, does not proceed along lines of reciprocal interest. Thus it is possible for the achievements of research carried out by state-run establishments to be published, this bringing the scientific endeavour to its conclusion, while at the same time a related industrial project proceeds, with the same structures, the same resources and the same technology, without adapting in any way to the new and relevant achievement which has appeared. In other words, it is possible for the publication of a specific industrial improvement relating to product, method or resources to remain unknown to the relevant industry because of a permanent gap in communications, and for the industry to go on basing its production on obsolete data.

5. The lack of correctly structured links between state-run establishments and basic university research and teaching. To the same category of reasons belongs the incorrectly structured development and allocation of research between universities and state-run establishments, especially in the less developed Community countries. This results in the deficient training of scientists in specialised fields and, consequently, in the loss of a significant fraction of the country's available scientific potential, a break in the flow and supply of specialist scientists from the universities to state-run establishments and, of course, a lack of coordination between operators engaged in basic and applied research.

6. The failure to exploit the whole of the Community's scientific potential, especially its young scientists. It is typical that, as has recently been pointed out, the average age of scientists working in the various institutions in Community Member States is 45. At the same time, the rate at which new researchers are brought in is only 3%, which means that very soon the scientific potential 'in action' begins to age. So the falling renewal rate and the 'closed doors' of research establishments at both state and Community level are preventing young people from entering the research circuit, resulting not only in a failure to make use of young scientists' skills but also in the rapid escalation of a serious social problem, with the widespread unemployment among scientific personnel. It should be taken into account at this point that there is a movement of scientists from Europe to the USA. In the past, the phenomenon was on two levels, with a movement of high-level scientists from the scientifically advanced countries of Europe to America, and a second current of movement from the less to the more developed countries of Europe.

With the arrival of the 70s, though, things changed. The movement of high-level scientists to the USA has now stopped, while the flow of scientists from the less developed EEC countries to the USA has increased, and those who settle there continue their education and do creative work, but do not return to Europe, since it does not offer them better working conditions.

7. Deficiencies in mobility factors, so that scientific and technological research systems in certain Member States operate in virtual isolation, albeit on a limited scale. Various factors, of course, contribute to these deficiencies, factors which are undoubtedly related to any number of subjective causes such as family reasons, difficulties in settling in, obstacles to movement, economic circumstances and others.

There are, however, other factors as well which are purely objective and are connected with the fact that an appropriate climate has not been created within the Community in favour of such a movement of scientists, and not only high-level scientists but also a whole host of scientists undergoing training.

8. The channelling of research findings via multinational companies. Large industrial units find it worthwhile to finance research projects and the latest forms of technology, but in areas outside the Community. For this reason, or because of their multinational character, they either keep research findings to themselves or feed them back to their parent companies, which are often controlled from other centres outside the Community.

III. Measures to enhance the effectiveness of research

The upturn in European science and technology must start from an awareness by each Member State and by the Community of those factors which have a negative influence on the effectiveness of the research and development systems both of Member States and of the Community, from a knowledge of the possibilities and weaknesses of the scientific potential, and from an all-round analysis of, and the possibility of estimating on a permanent basis, existing economic and social requirements and those foreseen in the immediate future.

Thus, a proper result will be forthcoming if an effort is made, first of all, to reverse all the aforesaid factors which have led to backwardness in the research sector, and, secondly, to take steps to turn such factors into positive ones. Now, as far as the historical factors which have had a negative effect on Europe's technological development are concerned, the possibilities of influencing them today are clearly minimal. The difference of phase, for example, created between Europe and the USA at the close of the 2nd World War, cannot be expunged from history; it can only be cancelled out in stages, by making efforts, the same being true as regards reducing dependence and the lack of uniformity.

Where a direct effort can be made, however, is in balancing out technological development in Community Member States, because that is also the necessary path to balancing out their social and economic development.

If this aim is to be achieved, the development of scientific and technological activities in the national research centres of the less-developed Member States must be promoted, and state-run laboratories and establishments in those countries must be helped to develop the specific activities relevant to the specific geographical and climatic factors affecting them, so that there will finally be a two-way serving of interests: support from the Community for the less-developed Member States in furthering their development and making the best local use of their scientific potential, with the advantage in return of incorporating every result achieved into the overall framework of Community development.

However, as far as the objective obstacles which the Community is now required to face are concerned, there is no doubt that action could be effective and of short duration. This does, however, presuppose a pioneering approach and the conviction that only by overcoming such obstacles will it be able to enhance its effectiveness and competitiveness. Going further, it is also clear that research and development programmes must be boldly financed. What is required is: