

EIROFORUM – Building the European Research Area

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The European Union

The European Economic Community (EEC) is a regional inter-governmental organisation, which has the particularity of exercising some supra-national prerogatives, established by the 1957 Rome Treaty, and whose name was



Historically, the EEC has given only minor attention to space research and development. Indeed, the first 25 years of the EEC were primarily dedicated to the essential political objective of building the Common Market. It is only after 1971, once the political crisis linked to the United Kingdom's accession was

resolved, that the EEC really began looking into space activities. In 1984, the EEC Council approved the First Framework Programme (1984-87), funding research and development initiatives such as ESPRIT, RACE and BRITE. The following year, the EEC Commission participated in the Eureka Programme.

However, the most significant tie between the EU and space research is the entry into force of the Single European Act in 1987, which extended the Commission's competence to research and development activities organised through the Framework Programmes by adding a new 'Research and Technological Development' title to the 1957 Rome Treaty. The Single European Act's Research and Technical Development (RTD) title was further significantly broadened by the 1993 Maastricht Treaty, stating that EC competence now applied to 'all the research activities deemed necessary by virtue of other Chapters of this Treaty.' In addition, a new title on the environment expanded the EEC's competence while generally providing for the Community's use of scientific and technical remote-sensing data. There are clear signs that in practice the European Commission is no stranger to space activities. The EU is competent, whether exclusively or not, in the areas of transport, environment, industrial policy, trade, and other areas that de facto have repercussions on space activities.

In early 2000, the Commission of the European Union (EU), through its Commissioner for Research, set out to establish a 'European Research Area' (ERA). The purpose of this initiative is to give Europe a structured network of expertise with which to efficiently promote regional research projects. EIROFORUM, the European Inter-governmental Research Organisations Forum, has been created in the context of the ERA for the purpose of fermenting ties between some of the most active and influential research entities in Europe, namely: the European Organisation for Nuclear Research (CERN), the European Fusion Development Agreement (EFDA), the European Molecular Biology Laboratory (EMBL), the European Space Agency (ESA), the European Southern Observatory (ESO), the European Synchrotron Radiation Facility (ESRF) and the Institut Laue-Langevin (ILL).

This article focusses on the background to the EIROFORUM initiative and the evolutions that have made EIROFORUM a necessity, highlighting how the EU's interest in space and research has recently crystallised, and how EIROFORUM may influence ESA's activities.

modified to the European Community (EC) by the Maastricht Treaty of 7 February 1992. The European Union itself, as a polity created by the Maastricht Treaty, encompasses the three Communities of the European Coal and Steel Community, Euratom and the EC, together referred to as the first pillar of the EU, as well as the second and third 'pillars' (the common foreign and security policy and the police and judicial co-operation in criminal matters, respectively).

EIROs

In parallel with the European integration process, European States have committed themselves to research and development by creating specialised regional organisations. In 1997, European multilateral public RTD organisations accounted for approximately 11% of European public expenditure on research and development, twice the amount committed by the EU RTD Framework Programmes. Such inter-governmental research institutions have several specific added-value characteristics, including the ability to provide their Member States with gateways to scientific and industrial communities in other countries. This enables Member States with less-developed scientific infrastructures to build and use the organisation's own capabilities, allowing Members to participate in infrastructures that are international centres of excellence, catalysing world-class science in Member States, etc. Among these are the EIROFORUM participants.



ESA is an International Organisation established by its Convention signed on 30 May 1975, and which entered into force on 30 October 1980. The purpose of the Agency is to *'provide for and to promote, for exclusively peaceful purposes, co-operation among European States in space research and technology and their space applications, with a view to their being used for scientific purposes and for operational space application systems'*, while promoting the competitiveness of European industry. In order to achieve its mandate, the Agency co-ordinates the European space programme and national space programmes.

ESO was established in 1962 to build and operate an astronomical observatory located in the Southern Hemisphere. ESO's task is to provide the best scientific instruments available and to promote and organise co-operation in astronomical research, equipped with powerful instruments, with the aim of furthering and organising collaboration in astronomy. ESO operates the La Silla observatory in the Atacama desert, 600 km north of Santiago de



Chile, where fourteen optical telescopes with diameters up to 3.6 m and a 15 m sub-millimetre radio telescope (SEST) are now in operation. In addition, ESO is in the process of

building the Very Large Telescope (VLT) on Paranal, a 2600 m high mountain approximately 130 km south of Antofagasta, in the driest part of the Atacama desert.

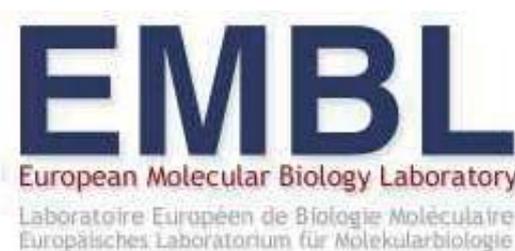


ESRF is a large experimental facility for basic and applied research in physics, chemistry, materials and life sciences, and is licensed to operate a powerful source of light in the X-ray range. The construction of the

ESRF began in 1988 and the opening of the first 15 beam lines to scientific users took place in September 1994. Today, the ESRF operates 40 beam lines, 24 hours per day and 7 days a week, in 'User Service Mode'.



ILL, an international research centre and one of the World's leaders in neutron science and technology, was set up in 1967 to provide a high-flux neutron source and instruments for physics, chemistry, materials and life-sciences studies. Over 800 experiments selected by a scientific review committee are performed at ILL every year.



EMBL was established in 1973 to promote co-operation among European States in fundamental research, in the development of advanced instrumentation, and in advanced teaching in molecular biology as well as in other related areas of research. To this end, it concentrates its activities on work not normally or easily carried out in national institutions. EMBL was founded in the light of a four-fold mission: to conduct basic research in molecular biology; to provide essential services to scientists in Member States; to provide high-level training to its staff, students and visitors; and to develop new instrumentation for biological research.



With respect to CERN, Article II of its Convention, which entered into force on 29 September 1954, reads that *'the Organisation shall provide for collaboration among European States in nuclear research of a pure scientific and fundamental character, and in research essentially related thereto.'* Article II further extends the Organisation's mandate to several different activities relating to nuclear research.

Finally, EFDA allows co-operation activities in the field of controlled thermo-nuclear fusion by magnetic confinement. The Joint European Torus (JET) Joint Undertaking was established in June 1978 to build and operate the JET machine, the largest single project within the European nuclear-fusion programme of its time.



Since 1 January 2000, the JET programme has been managed by EFDA, an agreement that is scheduled to remain in force until the end of 2002 and very possibly beyond. The JET has been co-ordinated by the European Atomic Energy Community (Euratom) and the project soon became the flagship of the Community Fusion Programme. Furthermore, JET became the first fusion facility in the World to achieve significant production of controlled fusion power, back in 1991.

Over the years, it became increasingly apparent that these EIROs evolved and worked independently from each other. Links among EIROs existed but remained scarce, making European research a fragmented arena with no real institutionalised or coherent co-ordination. Indeed, some analysts pointed out that multilateral research organisations in Europe have few horizontal links between them, due to the fact that they can be analysed as extensions of Member State activities allowing national scientific communities in Europe to interlock and, in several cases, co-operate on a global basis. In addition, observers have noted that these organisations have a tendency to compete against each other, trying to distinguish their own institution from other research entities. Horizontal links have therefore historically been mainly confined to 'exchanges of information', although there have been substantial exceptions.

Research in Europe

Hence, two different dynamics currently characterise European research: the increasing involvement of the EU, and the fragmentation of infrastructures and resources. European analysts have concluded that this fragmentation of efforts impairs the competitiveness and quality of research in Europe, especially with respect to the United States (USA). Meanwhile, the Commission is alarmed that the gap between the USA and the Old Continent will increase further if meaningful resource co-ordination is not implemented in Europe.

Indeed, the average research effort in the EU is currently only 1.8% of Europe's GDP, compared with 2.8% in the USA and 2.9% in Japan. This worrisome trend is expected to increase, as the difference between total public and private expenditure on research in the USA and Europe amounted to a gap of some 60 billion Euros in 1998, against 12 billion in 1992, an alarming five-to-one ratio. Furthermore, statistics show that Europe has had a high-technology-product trade deficit of 20 billion Euros per year over the past decade, and there is no clear indication leading one to argue that the trend will reverse in the short term.

The ERA initiative

Against this alarming picture, the EU is striving to implement proactive policies to bring research and technology back to the forefront of European priorities. Indeed, research and technology account for 25 to 50% of economic growth, while also having a strong influence on competitiveness, employment and the quality of life for Europeans. Philippe Busquin, the European Research Commissioner, has therefore set out to create a 'European Research Area', detailed in a Communication from the Commission to the Council, the European Parliament, the Economic and Social Committee, and the Committee of the Regions, adopted on 18 January 2000, whose aim is to *'contribute to the creation of better overall framework conditions for research in Europe.'*

Commissioner Busquin's basic contention is that Europe is ill-equipped to rival the USA, which is contributing more funds to scientific and technological research, while US spending in these areas is expected to grow 9% in 2001. In addition, the Commission feels that the prospects in life sciences and technologies are promising. Indeed, the information and communications sciences and technologies are playing an increasingly fundamental role for competitiveness, living conditions in Europe, as well as food safety and sustainable development efforts, issues that are all central to the agendas of European policy-makers. As an illustration,

the aforementioned 18 January 2000 Communication states that:

'.....scientific research and technological development more particularly are at the heart of what makes society tick. More and more, activities undertaken in this domain are for the express purpose of meeting a social demand and satisfying social needs, especially in connection with the evolution of work and the emergence of new ways of life and activities.... Science and technology play an increasingly important role in the implementation of public policies, particularly Union policies. They are involved in various forms in the drafting of regulations and can be found more and more in the policy-making process, at the heart of trade negotiations and at the centre of international discussions in fields such as, for example, safety in its various forms or the various aspects of sustainable development... The European research system must be organised in such a way as to pre-empt and take account of needs arising at the different stages of implementation of public policies: drafting, decision-making, implementation, monitoring. Policy-makers must be able to draw on precise knowledge which is as complete as possible and constantly updated and validated.'

The EU's research policy is implemented through its Framework Programmes. Thus far, these RTD Framework Programmes have been described as instruments *'to promote co-operation and support collaboration'*. The Sixth Framework Programme (2002–2006) (FPVI), also referred to as the *'New Framework Programme'*, currently in its draft version, is bolder than its predecessors in that this Programme *'is designed to enable it to step up its contribution to the development of scientific and technical excellence in Europe'*, while *'increasing its impact on the innovation process in Europe and reinforcing its contribution to the efforts to integrate European Research'*. However, the ERA initiative seeks to provide more than just EU funds through its Framework Programmes. It seeks to create a process through which a European research policy can be elaborated with the support of every concerned European actor, including EIROs. The ultimate goal of the ERA is therefore to elaborate a comprehensive collaborative effort in Europe in order to make research more efficient through extensive and meaningful co-ordination between research entities via the elaboration of networks and the identification of common goals and needs. The means that the Commission is looking into in order to make the ERA a reality are: networks of excellence, integrated projects, and the participation of the EU in programmes carried out jointly by several Member States.

EIROFORUM

Origin and structure

The EIROFORUM initiative was created in this context so as to strengthen the foundations of the ERA. Initially, the EIROFORUM endeavour included six members: CERN, EFDA, EMBL, ESA, ESO and ESRF. These founding members then invited ILL to join as its seventh Member.

Historically, Commissioner Busquin launched the idea in early 2000 during an informal Research Council held under Portuguese Presidency. The initiative to gather the EIROs came from Antonio Rodotà, ESA's Director General, who invited the highest representatives of the EIROs to discuss the proposal. A working group was thereafter established to analyse the ways and means by which the EIROFORUM initiative could be implemented. The initial working group, chaired by Mr Rodotà during the second half of 2000, had already accomplished substantive work by the time EIROFORUM was officially launched in the spring of 2001.

The structure of EIROFORUM is straightforward and underlines a balanced distribution of responsibilities between the participating EIROs. It brings together the highest authorities of each participating entity, in a forum where the main policy orientations are discussed and where further courses of action are analysed. EIROFORUM meets several times a year, to assess the progress of the initiatives thus decided.

The *'EIROFORUM Working Group'*, whose participants are senior staff members from the different organisations, assists the EIROFORUM. This Working Group is entrusted with the task of implementing the EIROFORUM measures, while looking into further issues of interest to the EIROFORUM. In addition, the Working Group acts as the Secretariat for the EIROFORUM.

The Chairmanship of the Working Group follows the yearly cycle of EIROFORUM. The Chair (currently CERN) of EIROFORUM nominates the Working Group Chairperson. The Secretariat function of the Working Group is assigned for a period of three years.

Purpose

As the EIROFORUM Charter states, a primary goal of EIROFORUM is:

'to play an active and constructive role in promoting the quality and impact of European Research. In particular the group will be a basis for effective, high-level inter-organisational interaction and co-ordination. It will mobilise its substantial combined expertise in basic

research and in the management of large international projects for the benefit of European research and development. This will be possible by exploiting the existing intimate links between the member organisations and their respective European research communities'.

In pursuance of this task, the EIROFORUM has first analysed the current relations between EIROs as well as with the EU from a legal and technical standpoint. In parallel, the EIROFORUM has produced several position papers regarding the pressing issues facing European research organisations today, namely: information technology and computation, instrumentation, technology transfer, new materials, outreach activities. Other topics were also raised and dealt with, including accession procedures, enlargement, the brain drain, fellowships, the FPVI, relations between EIROs and the EU as well as with the European Science Foundation, Japan, the USA and Eastern Europe.

Specific thematic meetings have already taken place in which each EIRO's experts have been able to discuss and provide inputs regarding areas where co-operation ought to be sought. A first meeting of the 'EIRO Outreach Network' was thus held at ESO in April 2001, and further topical workshops on instrumentation and materials are forthcoming.

This mechanism underlines the potential of EIROFORUM: a high-level representation of the EIRO's Director Generals sets the pace in EIROFORUM, the EIROFORUM Working Group implements these actions and recommends further courses of action to EIROFORUM, while topical workshops are held to co-ordinate specific tasks and measures.

Relations with the European Commission

The second fundamental function of EIROFORUM is to ferment vertical relations – to serve as a forum where EIROs can communicate and discuss their policies, goals and needs with the European Commission. Several formal and informal meetings have already taken place between EIROFORUM and Philippe Busquin as well as with Dr. Mitsos, Director General of the EC's DG Research. These meetings allowed the EIROs put forward their common views and ideas on how the Commission could best help rationalise and support the work of EIROs for the benefit of European society and to tackle the stakes of a knowledge-based society.

In addition, these EU officials have invited EIROFORUM Members to analyse the draft Sixth Framework Programme (FPVI) and relay

their inputs and suggestions to the Commission. This consultation with the EIROs illustrates how the Commission and EIROs can best work together to rationalise research initiatives in Europe, and how EIROs are central players who can meaningfully influence EU policies and support, whether financial or otherwise.

Conclusion

Hence, EIROFORUM's added-value is to have the most influential European research and development institutions in Europe pinpoint common goals and common needs in a forum where issues are comprehensively dealt with by its Members for further referral to the EU. If the stakes and the means are well defined by the main players in European research activities, then it becomes easier for the Commission to focus on the areas where its actions will reap the most benefit for European society. EIROFORUM therefore institutionalises two types of relations: horizontal relations between the EIROFORUM Members, who thus have a forum in which they can interact and discuss co-operation activities, and vertical relations between EIROFORUM as a group and the European Commission.

The EIROFORUM initiative cannot be singled-out from a broader strategic policy direction leading the EU and ESA closer together. Indeed, following the endorsement of the European Strategy for Space by the European Research Council and by the ESA Council at Ministerial Level in Brussels on 16 November 2000, a Joint Task Force (JTF) was created to monitor the implementation of the strategy, and to propose a framework enabling ESA to act as implementing agency with respect to EU policy on space. The EIROFORUM and the JTF complement each other well in the sense that EIROFORUM handles research matters as a whole within an intergovernmental framework, dealing directly with hands-on research collaboration initiatives in Europe, while the JTF looks into a better EU-ESA collaboration both at the institutional and programmatic levels.

The possibilities for discussion within EIROFORUM are endless. In order to take full advantage of the EIROFORUM initiative, its participants should endeavour to make this initiative widely known to their different departments, to publicise the fact that a forum now exists for the exchange of ideas with other European institutions, and that a common group has close relations with the Commission.