

## ESA and the EC : A coherent approach in Space

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I'd like to say before beginning that this paper is jointly authored by Dr Kevin Madders, who unfortunately is not able to attend the Colloquium this time due to engagements in Europe. He has asked me to extend his regrets to the organisers for his absence and to convey his most cordial wishes to all here today.

### 1) Introduction

Apart from the technological and scientific benefits of space research and exploitation, space activities have always played an important part in the ideological and political strategy of the United States and the Soviet Union.

Enormous amounts of funds were invested in the space race. The pledge of President Kennedy made in 1961 to send Americans to the Moon and bring them back safely came after two undisputed successes of the USSR: the launch in 1957 of the first Earth orbiting satellite Sputnik and in 1961 the first man in space, the late Yuri Gagarin.

These successes were heralded as the triumph of the Communist ideology over capitalist society. The United States decided that the space race should be won and did not spare any effort or financial means to achieve this goal. The landing of the Eagle on the Moon on 21 July 1969 was greeted in the United States as a major victory of American Technology.

In Europe space activities have never had this patriotic character. They were largely pursued because European countries took the realistic view that no one could afford space spending on its own. Of course, there were some space programmes running in Europe, in particular in the UK and in France, but the size of these programmes was in no way comparable with the US and Soviet programmes.

In any case, in the very early days a major preoccupation for Europe was not to be a competitor in the space race but rather to avoid the recurrence of yet another major conflict between European nations.

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The solution put forward by such great men as Schumann and Monnet was to eliminate nationalistic and parochial patterns by creating indelible links between the peoples of Europe, in other words to seek European integration. Several initiatives were adopted in this sense by the creation of the European Coal and Steel Community in 1952, the attempt to create a European Defence Community and the establishment of the European Economic Community and Euratom in 1957.

But the widespread openings for European integration also gave birth to other initiatives, which were completely independent from the ones just mentioned, and which did not necessarily assemble the same countries. The creation in 1962 of the European Space Research Organisation and the European Launcher Development Organisation illustrates this pattern.

One of the main contributors to these organisations was the United Kingdom, which was not a Party to the treaties of Rome on the EEC and Euratom. All these organisations were autonomous institutions under international law, accompanied by their own internal systems and

networks of international and private legal relations.

Like trains on separate tracks they all were heading towards achieving their own objectives.

## 2) The EC and ESA

The paths of the EC and the European space organisations ESRO and ELDO did not cross until 1971, when at a meeting of the Ministers of the European Space Conference in Brussels, the President of the Commission was invited as a matter of courtesy to attend as an observer. This contact was however very superficial as all these organisations had to struggle with their own problems of survival. Euratom did not prove to be successful and was desperately looking for a viable budget. The EEC limped from one agricultural policy crisis to another, while the European Launcher Development Organisation did not succeed in its attempts to launch its European rocket.

The creation of the European Space Agency in 1975, through the merger of ELDO and ESRO, put the European space effort on the right track, and soon a number of successes materialised.

From 1975 to the ministerial Council meeting of ESA in 1985, Europe developed the Ariane launcher, Spacelab, which was the European contribution to the U.S. Space Shuttle and a series of scientific and applications satellites. At the ministerial Council meeting of 1985 in Rome, ESA laid the foundations for its next goal, complete autonomy for Europe in manned and unmanned Space Systems. This goal was confirmed at the ministerial Council meeting of 1987 in The Hague where it was decided to start development of the Ariane 5 launcher and phase 1 of the Hermes, Columbus and DRS programmes.

In the meantime, the EC Commission for its part had managed to establish its competence and authority in Europe in Economic matters, in major part due to the efforts of Commission President Delors, who succeeded in giving a great impetus to European integration by securing the adoption of the Single European Act in 1987 and embarking on the ambitious task of completing the internal market by the end of 1992. Now, the paths of the two organisations had to cross. The Single European Act endowed the Community with wide-ranging and

explicit competences in the field of research and technological development, whereas ESA was embarking Europe, through the decisions taken in The Hague in 1987, on an ambitious Space programme geared to the year 2000. Moreover, the successes of ESA through its Ariane launcher, its Giotto mission and its Meteosat satellites, were clearly announced as a European achievement. The people of Europe could identify themselves with their own launcher and satellites. The activities of ESA therefore contributed to the building of a European identity which could not leave the Commission indifferent.

In 1988 the Commission issued its Communication "The European Community and Space : A coherent approach" which constituted the first official viewpoint of the Community on space matters in Europe which we still now review.

### 3) The 1988 Communication

The Commission's 1988 Communication to Council was prepared with great care, where several Directorates-General of the Commission were involved in analysing different parts of Europe's space effort, even if DG XII (Research and

Technology) took the lead in coordination and created a special unit for Space strategy. But outside expertise was also requested. The European Space Agency seconded one of its staff for the Communication's preparation, and independent consultants gave valuable advice.

The Communication appraised the strengths and weaknesses of Europe's space effort. It recognised the eminent role played by ESA and national space agencies, but criticised as insufficient attempts to exploit the applications of space technology, as well as the lack of industrial competitiveness in the telecommunications sector and the relatively low level of European space budgets. But the main criticism centred around the lack of a cogent overall policy, a policy which incorporates economic, social, industrial and even defence considerations -- a policy designed to strike a better balance and achieve greater consistency between the development of technologies and their applications, between the space segment and the general segment, and between joint efforts and national activities.

The Communication therefore concluded that EC action in space was both "possible and desirable" with a view to providing specific "added value" to Europe's space effort. Among other things, the Commission recommended cooperation and coordination with ESA in a number of fields, a call which led directly to the meeting of 7 February 1989 between Commission President Delors and Professor Lüst, ESA's then Director-General, where it was decided to create working groups in the following five areas: a) external relations, b) industrial policy, c) Earth observation, d) telecommunications and e) research and technology.

If the output from the different groups has been uneven it must be remembered that the larger geopolitical context has been in turmoil during the period since their establishment and that the ESA ministerial Council meeting in Munich last year was unable to confirm ESA's full-scale embarkation on the major development phases for the Columbus, Hermes and DRS programmes. Another factor is that part of the groups' time -- and they met at most four times a year -- was devoted to gaining a better

understanding of each other's working methods and procedures.

Nonetheless, the working groups have made interesting progress at a more practical level, particularly in external relations, where the Commission has financed, in the framework of its aid programme for developing countries, the upgrading of two earth stations in Bangkok and Kuala Lumpur for receiving ESA ERS-1 Earth observation data. On ESA's part, it provides, apart from the satellite data, the necessary equipment and training.

In another area of external relations, that of the Rules of the Road launch services negotiations between ESA and the US Government, the Commission has indicated an increasing interest and the exact relationship between the two organisations in this area is currently receiving in-depth consideration within ESA.

In a further area addressed at Working-Group level, industrial policy, the working group here has concentrated its efforts on a study of the European space industry and on the procurement practices of both organisations. A point raised by the Commission was the principle of "fair return" embodied in the

ESA Convention, since this notion of recompense in industrial work for financial contributions made by ESA Member States can lead to an over-emphasis on technological challenges at the expense of a genuine commercial policy.

It should be noted in this connection that the 1988 Communication mentioned the "fair return" principle, but did not condemn it and the Commission seems to have recognised that it is implicit in ESA's system of cooperation. Because the principle exists, ESA's Member States have an incentive to make scarce funds available for space and, by doing so, to make their industries more technologically competitive. A further point worth mentioning is that the "fair return" principle operates in ESA according not to money values alone, but according to a technological "weighting" system -- the money spent on the concrete foundations of a tracking station is, in effect, worth less than the money spent on the tracking equipment itself.

Such considerations notwithstanding, the Commission felt that a case can nevertheless be made for a less rigorous application of the principle on

grounds of industrial competitiveness, and that, in particular, serious thought should be given to finding ways to bring the mandatory level of return closer to the ESA's Convention's minimum level of 80% rather than the present 95%.

Discussion on this item has thus been fruitful, and will continue, along with that on Earth observation, where this working group has done a great deal of work on a joint ESA-EC project called TREES. This project aims at studying the depletion of the tropical forests with the aid of ESA's ERS-1 satellite. ERS' synthetic aperture radar (SAR) can observe the Earth under all weather conditions and is thus ideally suited to this application.

Even if this project, which was stimulated by the widespread concern for environmental issues, is of particular merit, the main practical expression of cooperation in this area is the establishment of a joint Earth observation data network. This serves to ensure adequate access for users to the vast range of applications Earth observation satellites can offer.

At another level, and separate from this working group's activities, ESA and the Commission have cooperated in securing better legal protection for remote-sensing data. The midwife of such cooperation was the European Centre for Space Law (ECSL), and the joint studies may lead to measures for protection being introduced into an EC Directive within the near future. This should help to promote European private investment in remote sensing.

Turning to telecommunications, an area where ESA and the Commission had cooperated even before the creation of the Working Group in 1989, the Commission issued a Green Paper in 1987, which aimed at liberalising the telecommunications market in Europe. Satellite communications were however not discussed in detail in that Green Paper, and an additional document on satellite telecommunications was issued in collaboration with ESA at the end of 1990.

The main concern of the Commission is the ground segment market, which is dominated by the United States and Japan. The weakness of European industry has been analysed by the Commission and put down to three basic factors: the

fragmentation of the European market, national regulations and the slow pace of harmonisation of technical standards.

The Green Paper on satellite communications envisaged therefore a number of actions, such as the full liberalisation of the ground segment, the unrestricted access to space segment capacity and full commercial freedom for space segment providers.

The next step is to bring forward the necessary legal texts to implement the policy lines of the Green Paper. ESA's role is of course of importance in alerting the Commission to technological developments relevant to the user sector.

In a final area addressed by the joint working groups, that of research and development, the R&D Working Group has made a comparative analysis of the technological requirements of the ESA programmes, in particular in view of the Hermes, Columbus and Ariane V programmes, which tread new ground in technological expertise. It concluded that there existed many points of convergence between these ESA programmes and Community research programmes such

as Esprit, Race, Brite, Euram and Teleman, in the area of robotics. The information which was ascertained has avoided duplication of efforts and has allowed ESA and the space industry to benefit from the technologies developed under Community programmes.

#### 4) The Gibson Report

From the above one can conclude that the cooperation between ESA and the Commission has started in a satisfactory manner between the two organisations. But how did matters fare further within the EC?

The 1988 Communication was discussed at a meeting of the European Research Council in December 1988 chaired by the French Minister, Professor Curien, a former Chairman of the ESA Council. At the meeting the Commissioner responsible, Mr. Narjes had a hard time explaining that the main purpose of the Commission's intended actions in the space field was to have a complementary character to the ESA programmes. The Ministers felt indeed that the space effort in Europe was adequately taken care of in ESA and did not prima facie see why the Commission should interfere in these activities. As the Research

Council was of the opinion that the Communication was pertinent not only to Research matters but also to a variety of subjects such as telecommunications, Earth observation, external relations and industrial policy, which were within the competence of other European Councils it was decided to entrust the Committee of Permanent Representatives (OREPER) with further action on the Communication.

The Commission therefore decided to prepare the ground for such action and sought first advice from a panel of specialists in space matters. It produced a report, issued in September 1991, which is known by the name of its Chairman, Mr Roy Gibson, a former ESA Director General. This report urged caution in the development of policy -- desirable as this is -- in a field as complex as space, but did recommend focused attention to be devoted especially to telecommunications and Earth observation, where the potential for complementarity was obvious. Having had the benefit of this advice and further reflection, the Commission is now preparing to issue a second Communication. As with the first, ESA has been

involved in its drafting though it is of course premature to comment on what it may or may not contain in its final version.

#### 5) ESA and the EC: Approaching Coherency

To round up, where do we stand today? The above exposé shows that a process has been initiated which is pragmatic in nature, one in which the two organisations are trying to get a grasp of each other's ways of operating.

While the Commission in its 1988 Communication foresaw putting the Community's political support behind ESA's programmes, this did not in fact materialise. Yet, individual instances of cooperation have, on the other side, proved successful at a number of levels, both in institutional and programmatic terms.

The question which must be asked however is whether the current pace of cooperation is sufficient in the fast-changing political context in which we live.

Internally, Europe is changing, as anyone following the different sides of the debate on the Maastricht Treaty will appreciate.



But this is as nothing compared to the transformation we are witnessing to the East, and whose tendency in the space field seems firmly in the direction of the two parts of Europe -- or perhaps more accurately Eurasia -- drawing steadily closer. Not only has ESA concluded one cooperation Agreement (with Hungary) and negotiated two others so far with Central European States (Poland and Romania), but is looking forward to a major revamping of the existing Cooperation Agreement with Russia, concluded in the days of the Soviet Union. The ramifications of this kind of development clearly need to fit into a wider European approach towards our new partners.

Beyond this, the environmental issues highlighted by the UNEP Conference in Rio this June will not go away. They will prove a lasting spur to ESA-EC cooperation on a coordinated approach that uses space technology to preserve the Earth and the resources of our own region.

Not to be forgotten either is the industrial dimension, as seen in a world suffering at best variable economic fortunes and at worst the dangers of a virulent protectionism. And lastly there is

the human factor. Exploiting Space may serve Man's needs, but its exploration feeds his Soul. The authors hope that a strategy for Europe taking in all the above factors, and not least this most precious one, can and will be developed in earnest over the coming years.