European Economic and Social Committee

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European space policy

Brussels, 19 June 2003

OPINION

of the European Economic and Social Committee

on the

Green Paper on European Space Policy

COM(2003) 17 final

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On 21 January 2003, the European Commission decided to consult the European Economic and Social Committee, under Article 262 of the Treaty establishing the European Community, on the

Green Paper on European Space Policy
COM(2003) 17 final.

The Section for the Single Market, Production and Consumption, which was responsible for preparing the Committee's work on the subject, adopted its opinion on 4 June 2003. The rapporteur was **Mr Buffetaut**.

At its 400th plenary session (meeting of 19 June 2003), the European Economic and Social Committee unanimously adopted the following opinion.

1. Introduction

With this Green Paper the Commission has opened a broad debate on European Space Policy and its future, at a time when the European space industry faces a more difficult situation than in the past owing to greater competitive pressure, shrinking telecommunications markets and factors peculiar to the development of our space industry, which is based primarily on civil and commercial activity; more generally, space is a high-risk and commercially fragile sector, even though the potential of its applications is still expanding. Long-term economic returns do exist, in non-commercial, non-competitive public service sectors, such as weather forecasting and earth observation from space. In addition there are real economic benefits for the commercial sector (fishing, transport, agriculture and tourism), but they are indirect and for the common good.

1.1 Background

1.1.1 The European space project was born in the 1960s, in particular at the instigation of France, which wanted to ensure independent access to space, and the sector has developed on the basis of growing European and international cooperation. National space projects were gradually merged and at the same time international collaborative programmes were set up, in particular with the USA and later with Russia, China and Japan.

1.1.2 Today, Europe has a mature space sector producing highly reliable launchers and satellites (in the past decade Ariane has put over half of all commercial telecommunications satellites into orbit). European space activities cover the whole spectrum of production, from design and manufacture of space systems to scientific research and its value-added applications such as telecommunications, earth observation and satellite navigation.

1.1.3 This process was essentially initiated by the national space agencies, particularly by France's CNES (Centre National d'Etudes Spatiales) and since then has been supported in an

intergovernmental framework, primarily under the auspices of the European Space Agency (ESA), which is a crucial coordinating player.

1.1.4 The European Union itself has gradually become involved in space, e.g. with the Galileo project and the GMES initiative (Global Monitoring for Environment and Security).

The nascent Common Foreign and Security Policy and Common Security and Defence Policy must go hand in hand with the formulation of a strong European space policy.

1.1.5 The European space sector is characterised by very particular features:

– the wish to maintain and increase autonomous access to space by developing launchers and to ensure independent use of space by developing its own satellites;

– efforts to develop scientific knowledge and applications;

– the development of a competitive and innovative industrial base;

– the priority given to civilian and commercial applications;

– the development of a number of space applications, particularly satellite telecommunications, but also earth observation, management and prevention of natural and technological disasters, sustainable management of the environment, navigation and weather forecasting;

– international cooperation with the leading space powers for major instruments and large-scale missions, including (but not limited to) manned flight, which is the most spectacular aspect and is emblematic of the original spirit of adventure and discovery;

– the relative underdevelopment of military applications.

1.1.6 It must be acknowledged that the commercial success of launch activities was boosted in the 1980s on the one hand by the virtual abandonment of conventional launchers by the United States and on the other by the fact that Soviet launchers had no access to the commercial market.

1.1.7 The current environment is very different in many respects, both in competitive and market terms.

1.2 **Current environment**

1.2.1 The political determination of the United States in the space sector is being more strongly asserted than ever before. The USA sees space systems as an instrument of strategic, scientific and economic ascendancy based on the notion of "controlling space" and "controlling

information systems" (which explains, for instance, a certain opposition on its part to the Galileo project).

1.2.2 This objective finds practical expression in a very high level of investment, representing 80% of world spending in the space sector (civilian and military). Thus US public spending on the space sector in 2002 was €31.8 bn (half military and half civilian) compared with €5 bn in Europe (90% civilian). In the United States the military sector can therefore be said to drive civilian applications, whereas in our case the civilian research sector benefits the military. The US figures for 2003 are €15.4 bn for the civilian sector, €16.6 bn for the military sector together with a further €6 bn for classified programmes, amounting to a total of €38 bn.

1.2.3 Despite its current situation inherited from the bankrupt Soviet system, Russia has maintained a substantial scientific, technological and operational base. However, it has expanded cooperation with the USA more than with its European partners.

Its neighbour Ukraine has an effective technical capability in the launcher sector.

1.2.4 Finally, recent years have seen the emergence of new countries in space competition: Japan, China, India, Israel, Australia and Brazil, with potential launch sites in the equatorial zone.

1.2.5 Against this background of increased competition and contraction of commercial markets, especially in the telecommunications sector, with nothing like the same degree of assistance and complementarity of military and civilian applications that exists for example in the USA, and existing in a more complex institutional and political environment than those of its competitors, the European space sector is in a difficult situation. The problems relate not only to the absence of a military space programme but also to the vulnerability of the European institutional market which (unlike the US market, particularly as regards launchers) is completely unprotected, and to our space industry's over-dependence on the commercial market.

1.2.6 It is in this context that the Commission decided to draw up a Green Paper on European Space Policy, in conjunction with which workshops will be held across Europe until June 2003 and which will be followed by a White Paper.

2. **The Commission's approach**

2.1 The Commission has divided its document into three broad chapters subdivided into topics, on which 12 questions are formulated.

2.1.1 *European space in a changing global context*

The Commission raises issues about autonomous access to space, maintaining scientific excellence, the industrial and technological base and its possible weaknesses, market conditions and institutional demand, potential and opportunities for international cooperation, the

problem of manned flight (e.g. return on investment), financial resources and the relationship between spending at European and national level, and finally the future of professions in the space sector.

2.1.2 *Placing space more at the service of Europe and its citizens*

2.1.2.1 Under this very general heading, which seems to beg the question, the Commission first addresses the issue of the business applications or general interest of space activities and research. It gives examples of current applications and applications in development (weather forecasting, satellite navigation, transport, citizens' security, sustainable development, control and implementation of the common agricultural policy and common fisheries policy, management and prevention of natural and technological disasters, etc.).

2.1.2.2 The Commission also considers the emergence of economically viable and competitive applications and the possibility of public support for them, as well as the issue of space capability in the context of the European Common Security and Defence Policy. Although Europe does have strategic capabilities, they are widely spread and the systems are not inter-operable.

2.1.3 *Towards a more efficient and ambitious organisation and framework*

This chapter deals with institutional issues in a sphere where national, intergovernmental and Community remits overlap and where questions of European independence and political will are critically important.

2.2 The Commission notes that the national framework in this sphere was superseded over 30 years ago and recognises the effective role played by the ESA.

2.3 It asks two questions relating to policies and institutions:

– how to exploit the space "acquis" in Europe for the benefit of Union policies;

– how to reinforce the political and juridical bases necessary for efficient action by the European Union and Europe in the space field (specifically how to include arrangements on space in the future Union treaty).

2.4 It adds two further questions of a more economic and technical nature: on the implications of restructuring in the aerospace industries and on the regulatory obstacles that are hampering the development of space telecommunications services.

3. General comments

3.1 *The issues*

3.1.1 The EESC notes that space has many applications for civilian and military initiatives in the most buoyant sectors of the information society, such as satellite navigation, positioning, earth observation and weather forecasting. It emphasises that major sectors of commercial activity and civil society – including civil aviation, transport, fishing, agriculture and tourism – depend on the availability of space technologies and services. It also notes that space-based resources promote European cohesion by making it possible to reach the more remote regions and reduce, in technical terms, the "digital divide", in concert with terrestrial technologies. They could also become a vehicle for new services helping to improve living conditions in areas to which access is difficult (telemedicine, telelearning, etc.). Furthermore, from a strategic and military perspective, independent access to and use of space is a key factor in preserving Europe's autonomy. European space policy is therefore of considerable importance for the future, from both a civilian and a political and military point of view.

3.1.2 The fact that all the major countries have come to the same conclusion – i.e. that a national space policy is impossible without independent access to space – has now led to a worldwide overcapacity of means of launch. In the launch services market, supply is primarily linked to strategic considerations rather than commercial demand. The continued existence of an industrial and technological base, and of space research, is contingent on guaranteeing independent access to space. Responsibility for maintaining independent access currently lies with the States which have decided to provide it and to commit the requisite investments to support their decision. Europe is now at a crossroads and must take vital political and financial decisions if it is to maintain its autonomy in the space sector.

3.2 *The space industry*

It is worth pointing out the economic and social importance of this industry, which has an overall turnover of €5.3 bn and employs directly some 35, 000 people, many of them highly skilled.

3.2.1 **Indivisibility/duality of the space industry**

3.2.1.1 The space industry can be both civil and military and is therefore simultaneously indivisible and dual. Despite the importance of this aspect, it is all too rarely pointed out. We are not looking at two separate space industries, commercial and civilian on the one hand and military on the other, but at a dual launcher and satellite industry. It therefore requires a comprehensive space policy which avoids unnecessary duplication.

3.2.2 **Vulnerability of the European space industry**

3.2.2.1. The following key points need to be made:

– with far greater reliance on the commercial market than its American counterpart (52% of its turnover compared to 20% for the USA), the European space industry is much more vulnerable to the economic climate, and particularly to the fluctuations in the telecommunications sector, whose financial and commercial support has been vital to the development of the European space sector and satellite operators;

– unlike its US counterpart, the European space industry does not have the stabilising element that would be provided by military programmes. In addition, from a legal perspective, the recitals of the ESA Convention of 30 October 1980 expressly state that its aim is "to define a European space programme for EXCLUSIVELY PEACEFUL purposes";

– it is important to ensure that the industry has all the basic technologies necessary for totally autonomous development (for example, it should not depend on the USA for the on-board atomic clocks on Galileo and certain electronic components). In addition, delays or procrastination in implementing programmes (such as Galileo) risk dispersing or dissipating engineering teams, whereas high-technology industrial capacity is dependent on people and their skills. It takes a considerable time to build such capacity, but very little time to destroy it.

3.2.3 **Financing**

3.2.3.1 Public funding comes from the national space agencies, the ESA and the Commission. It plays a vital, and in a sense seminal role. It enables other sources of funding to be found for developments that would not be possible without mobilising financial contributions not directly related to space (such as financial resources allocated to weather forecasting).

3.2.3.2 The system for financing ESA programmes, which is based on the principle of fair return, has encouraged a number of states to get involved in the space field and led to the emergence of space activities in areas where there were previously none. From this point of view, the principle has been beneficial, but there are now good reasons for questioning its continued effectiveness. In fact, many of the delays in implementing the Galileo programme have been due to problems with the application of this principle, which can paralyse action and lead to both fragmentation of the space industry and a weakening of centres of excellence. If there are already difficulties in applying the principle within the current perimeter of the ESA, these will only be aggravated if some or all of the future EU members wish to join the ESA. Looking to the future, consideration should be given to new regulations – for example on "strengthened space cooperation" programmes between signatories to the ESA Convention, or amendment of the rule of fair return. If, as is desirable, space becomes a shared competence, it will be possible to launch Community programmes without being constrained by the rule of geographic return. In any event, states which do not have a space sector of their own always benefit, at least indirectly, from the development of European space activities.

3.2.3.3 Private funding comes in when operational applications can generate a commercial return on investments. If this is not the case, or if the economic returns are indirect, public funding is needed, but careful account must be taken of its knock-on effects in downstream sectors.

4. **Specific comments**

4.1 *Independent access to space*

4.1.1 One of the key factors for the development of European space policy is maintaining independent access to space. There are lessons to be drawn from the USA, where the practice is to support national launch activities as a strategic priority. The adoption of a similar attitude in Europe would both ensure a better economic balance in the use of European launchers and express the will of the public authorities to encourage a sector which is of strategic importance for Europe's future.

4.1.2 The notion of "space domination and control", which the USA sees as one of the guarantees of its national security, poses the problem of freedom of access and use of space. The desire for control of space can lead to a temptation to deny access to others, or, at the very least, to exercise close and permanent control over access. Europe cannot accept this and must have the means to act autonomously in four key areas: observation, telecommunications, navigation, and access to space, without being confronted by "access denial", even if the control of the risks caused by the very existence of space systems must be the subject of close cooperation (for example, dissemination of high-definition images of sensitive areas).

4.2 *Space science*

The issue of space science is addressed only briefly in the Green Paper. However, the EESC notes that the Commission has opportunely organised a high-level workshop on this subject in order to underline its importance and compensate for the Green Paper's weakness in this area.

4.2.1 European space science has played a pioneering role across the whole spectrum of civilian space activities. Over the past few decades, space science has reached a high level of excellence and has successfully competed with the USA in key domains. The ESA's scientific programme, together with the associated large-scale national programmes, have played a key role in this respect.

4.2.2 The pioneering nature of scientific space missions makes them an effective source of innovation and progress. The prerequisite development of new instruments and new types of satellites and data analysis methods has produced important industrial spin-offs. For example, the high-efficiency detectors and supermirrors developed for astronomic space missions have led to practical applications in the medical field and the optics industry. The same applies for the scientific instruments used in earth observation, which are also used in the observation and monitoring of the

climate, meteorological phenomena and the environment, and in exploring and prospecting for terrestrial resources.

4.2.3 Scientific space missions have led to the acquisition of particularly interesting and exciting knowledge about the earth and its immediate environment, the solar system and the universe. They thus have considerable cultural and educational value. If, as was asserted at the Lisbon Summit, the European Union is to become the most competitive and dynamic knowledge-based economy in the world, it will have to invest in new knowledge.

4.2.4 Nevertheless, as things currently stand, Europe's space industry is suffering from the decrease in national budget allocations. One consequence is that the scientific community is ageing, whilst young scientists are faced with an insecure future and uncertain careers.

4.2.5 Europe's technological deficit is linked with its research and development capacity. Europe's space industry lacks essential satellite components and/or technologies in some fields. In many cases, these components are available in the United States, but American export regulations prevent European industry from actually accessing them. If Europe is to maintain its access to space and its freedom to build the satellites it wants, it is vital that it secure independent control over these technologies.

4.3 *The commercial market and institutional demand*

4.3.1 As has already been emphasised, the space industry is a dual one, and it would be artificial to distinguish a civilian, institutional or commercial industry and a military industry. Although public funding has a substantive spill-over effect, means of arousing the interest of new sectors need to be found in order to stimulate demand.

4.4 *Manned space flight*

4.4.1 Although it has opened new avenues for scientific and medical research, and whilst future missions should lead to technological and scientific progress in a number of fields, manned space flight cannot be justified in terms of its economic and scientific returns alone. On the other hand, it is a fundamental expression of humankind's deeply rooted desire for adventure, new experiences and exploration of the unknown, and can therefore also stimulate and maintain public interest in the pursuit and future applications of the "space adventure". In this respect the International Space Station (ISS) represents a unique example of space cooperation between 15 countries for strictly scientific and peaceful purposes. However, Europe must assess its participation in the ISS in terms of the strategic, scientific and economic benefits which it derives from it.

4.4.2 Any new and future projects, such as manned space flight to other planets, should be planned and implemented from the very outset as global projects for humanity as a whole and not as prestige initiatives for a particular state or for the European Union alone (it is self-evident that the USA and other space powers such as Russia, China and Japan would have to be involved in projects

of this kind). Nevertheless, in order to have the capacity to be a serious and influential partner in such enterprises, the EU needs to have a successful space programme of its own.

4.5 *Budgetary and financial resources*

4.5.1 The wording of Question 5 may not be appropriate. With the exception of Belgium, which has invested exclusively in European programmes, the states which make the highest contributions to the ESA, proportionate to their GDP, are also the countries which allocate the highest funding to their own national space agencies. The important question is not the origin or the destination of the funding but how much is committed overall.

4.5.2 In practice, resources come from three sources: the public funding allocated to space research, contributions from public and institutional users (weather forecasting), and contributions from private users. It would be desirable for all three sources of funding to be increased, by getting new sectors interested in space applications and to consider how the current ESA funding rules could be adjusted so as to prevent delays, such as those encountered for the Galileo programme.

4.6 **Career development and skills**

4.6.1 Given that the really vital resource is people, without whom Europe could not envisage building and maintaining a strong and ambitious space sector, the main challenge is to provide highly-skilled, stable and attractive employment with good career prospects. Unless we can enhance and recompense the skills of both individuals and teams, we may be faced with a brain-drain. The answer lies in a strong political commitment to space policy and for Europe to recognise that "the only genuine form of wealth is people".

4.7 *The emergence of economically viable and competitive applications*

4.7.1 The concept of economic viability does not correlate exactly with the idea of commercial viability, which now only applies in the telecommunications sector. Support for the development of new services, such as broadband services, would guarantee a long-term demand for high quality satellites as well as helping to relaunch space activity and creating a new market for our launchers and satellites.

4.7.2 There may be an obvious economic interest in some areas, but does this necessarily mean that investments are economically viable? For example, how can it be judged whether an investment in weather forecasting is economically viable? In this case, although the returns are considerable, they cannot be clearly identified or classed as commercial transactions. On the other hand, the services provided to various sectors of the economy (air, maritime and terrestrial navigation, agriculture and fisheries) are self-evident and lead to increases in productivity, quite apart from their contribution to the safety of goods and persons. Notwithstanding these considerations, institutional support is necessary during the demonstration phase aimed at establishing the technical and economic feasibility of an activity, before the sector invests in its development.

4.8 *Improving the security of citizens*

4.8.1 Consideration must be given to the question of whether European space activity can be viable in the long term without the mutual support of the civilian and military sectors. It is also important to consider that in the military sector, existing systems are uncoordinated and not interoperable. Attention must be given to the shortcomings of European military space activity, particularly in the areas of information, intelligence and the fight against terrorism.

4.8.2 This is essentially a political question. If the EU wishes to play an international role, it will have to take independent decisions and have its own sources of intelligence and consequently its own military space capacity. Although Galileo and GMES remain civilian projects, they have eminently strategic value and can have dual applications.

4.8.3 A list of national and multinational military space initiatives in Europe would demonstrate that responses to requirements in this area have been fragmented and made without consultation. France, the United Kingdom, Italy, Germany, Spain and Belgium all take part in these initiatives and it is possible that in future other Member States may wish to develop space programmes in the military sector or take part in existing programmes.

4.8.4 The expression of Europe's military requirements and responses to them therefore need to be coordinated. This could be the first step towards establishing a truly European space sector of security and defence, which could boost the whole of Europe's space activities, guarantee their long-term existence and maintain Europe's autonomy. The introduction of closer cooperation in this area could be the cornerstone of this process.

4.9 *The EU, the ESA and the Member States: objectives, responsibilities and mutual relations*

4.9.1 Before specifying roles and relations, it is important to define objectives. Space policy must ensure autonomous access to space for Europe, disseminate applications of space activities in the economy and society, strengthen demand for services using space-based resources and expand it to encompass new actors and fields, and develop initiatives in the area of security and defence. This calls for a reorganisation of roles and relations. To be successful, it is vital to avoid sterile disputes over responsibilities between the various actors concerned. A clear and firm policy presupposes a political authority that is recognised at European level. With this in view, roles must be allocated in accordance with efficiency requirements, by avoiding the risk of duplicating programmes and in compliance with the subsidiarity principle. Given the prospect that space policy will become a shared competence, the ESA could evolve into an executive space agency of the European Union. Seen against this background, the EESC regrets that negotiations between the ESA and the Commission on the framework convention have not been concluded, since, by defining a proper European space policy with the ESA as its "weapon arm", the convention could be the cornerstone for relaunching European space policy and developing the roles of each party.

4.9.2 The EESC notes that the "perimeter" of the ESA Convention no longer correlates with that of the European Union. For instance, Switzerland and Norway belong to the ESA whereas Greece and Luxembourg do not and Canada is an observer. The accession to the EU of ten new Member States will probably strengthen this tendency. This should incite the EU to put Community funding towards space policy (and therefore to provide the EU with shared and/or parallel competences in this area), from which all the Member States could benefit, even if this investment produced no direct or immediate returns. The EU should also consider options for variable geometry cooperation programmes. In addition, a number of accession countries and other eastern European countries are already involved through cooperation conventions in the space field.

4.10 *The political and legal bases for the Union's and Europe's action in the space field*

4.10.1 The fact that space is referred to as a shared competence in the draft Constitutional Treaty is important, so long as it expresses a genuine political will and is accompanied by the requisite additional financial resources.

4.11 *Transparent and stable regulatory framework*

4.11.1 The question of negotiations on frequency spectrum, orbital positions and standardisation is even more important than the issue of regulatory barriers to exports. European action would be far more efficient if it were better coordinated. Despite the progress made by the European Conference of European postal and telecommunications administration, the satellite industry is still faced with inconsistent and ill-adapted regulations on frequencies, authorisations and licenses. Satellite operators need secure access to frequencies, as well as alignment of the rules on authorisation and licensing and the introduction of common standards for the use of frequency spectra and access rights, whose sole aim is to cover administrative costs. Lastly, European directives and decisions on these matters need to be transposed into national law.

5. **Conclusion**

The European Economic and Social Committee considers that Europe's position in the space sector will depend on the strength of its political commitment and the clarity of its budget decisions. The introduction of a shared and/or parallel competence for the space sector in the future European constitutional treaty would provide the European Union with the political, legislative and financial means to define and implement a strong space policy, which will have to, inter alia:

– guarantee autonomous access to space for Europe;
– contribute to Europe's strategic autonomy;
– develop a programme of scientific excellence;
– promote applications benefiting EU citizens and sectoral policies;
– coordinate a dual research programme in space technologies in order to ensure our independence in civil, commercial, security and defence activities.

Our scientific, technical and industrial capacity puts us amongst the leading players in the space field. The example of Galileo is a clear demonstration that we must act swiftly and decisively, or risk forfeiting our first-rate capital in the space sector. The stakes are high: does the European Union have the political will and the economic clout to maintain its autonomy and remain among the elite in the world of space? Will "old Europe" act with determination, vigour and confidence in the future or will it let itself become a vast retirement home for nations which were once great?

Brussels, 19 June 2003.

The President of the European Economic and Social Committee	The Secretary-General of the European Economic and Social Committee
Roger Briesch	**Patrick Venturini**