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TO THE COUNCIL, THE EUROPEAN PARLIAMENT,
THE ECONOMIC AND SOCIAL COMMITTEE
AND THE COMMITTEE OF THE REGIONS

EU Action Plan: Satellite communications in the Information Society

1. Introduction

Europe must take a more proactive and consistent approach in the satellite communication area. Under the combined influence of strong technological progress, deregulation and the drive for convergence between the broadcasting and telecommunications sectors, developments in satellite communication sector are of strategic and commercial importance.

New requirements emerging for the Information Society are demanding high performance access and back-bone infrastructures. Space-based infrastructures will increasingly meet key user requirements such as personal mobility, access to the powerful, high capacity, broadband evolution of Internet, fast response times, and global connectivity.

Global satellite infrastructures will thus become a critical part of the world's economic system.

Furthermore, satellite communications systems are becoming an important tool in supporting peace-time operations and space-based systems in general have a distinct defence implication. Moreover, the geographic coverage of space-based infrastructures favours improved social and economic cohesion in connecting peripheral and less advanced regions.

As a result, a strong and coherent satellite communications industry and services sector is of high economic and political importance for Europe.

It will provide critical leverage over the development and spread of new applications in the Information Society and over their geographical distribution.

US led initiatives for satellite based communication systems of global coverage, particularly in the area of Satellite Personal Communications (S-PCS) and advanced broadband multimedia satellite systems are clearly emerging today. Should Europe not react in a coordinated manner, there is a high risk from being kept out of the most promising market segments (services and equipment). In the long run this would have consequences on the European position in launching services. Furthermore, keeping control over space segment design is important to maintain the control over end-to-end service provision definition and terminal design.

The key driving force for being a major player in space is the achievement of successful commercial services and applications.

The revenues generated in the various market segments (satellite, terminals and services) by the innovative satellite personal communications systems and the advanced broadband satellite systems are **expected to reach 400 billion US\$ over the next ten years.**

Expected revenues over the next 10 years

| | Traditional Geostationary | Satellite Personal Communications and Advanced Broadband Systems | Satellite Navigation |
|------------|------------------------------|---|-------------------------|
| Satellites | 15-20 Bn US\$ | 15 Bn US \$ | 0.8-1 Bn US\$ |
| Terminals | 60-90 Bn US\$ | 130 Bn US \$ | 27-38 Bn US\$ |
| Services | 100-150 Bn US\$ | >250 Bn US \$ | 30-45 Bn US\$ |

Satellite Personal Communications Services (S-PCS) systems will offer voice, low data rate and fax services to small, inexpensive pocket size terminals from a global constellation of Low Earth Orbiting (LEOs) satellite constellations. However, out of the 17 such systems notified to date, all of them but one is of US origin, although only a limited number is expected to be viable. Although European industry participates in these projects with various degrees of involvement, none of the systems have gotten a *European leading position*.

For advanced broadband multimedia services, satellite systems with very high capacity allow for high rate direct user access with interactive low cost user terminals. These systems are expected to play an important role as advanced Internet access and will be launched early next century. Again, the majority of proposed systems is of US origin. Out of the 16 proposed US systems, all of them but two are based on geostationary constellations. Of these, the Teledesic system proposes a Low Earth Orbit constellation with a blossoming 840 satellites costing 9 billion US\$, while Motorola has announced its M-STAR project for 6.1 Billion US\$.

European reactions to the many US systems, although late, were introduced at the end of 95. Four entities have so far declared interest in the matter and have booked frequencies and orbital positions in the Ka band. However, the absence of a critical mass of initiatives and of a public-private partnership which could provide the necessary confidence to the financial markets, have thusfar limited the prospects for such European ventures. The situation is even worse in the S-PCS case, where no European proposal yet exists.

So, despite the tremendous efforts over the last 30 years, **the European satellite equipment and service industry is not well placed to achieve the position in the commercial space sector needed to support the ambitions of the European Union to remain a major player in this sector.**

The potential consequences of this perspective should not be underestimated as first movers will have clear advantages in the market.

The recently adopted Communication on the European Union and Space¹ highlights the need for action in order to establish an appropriate environment for the development of space applications and to improve the competitiveness of European industry at world level. In the Communication, the Commission stated its intention to launch a specific Action Plan on Satellite Communications².

In this Communication, the Commission presents the Action Plan to Council and the European Parliament, a draft of which has been consulted with industry.

¹ "The European Union and Space: Fostering Applications, Markets and Industrial Competitiveness", COM(96)617, of 4 December 1996

² In addition an action plan on global Navigation by Satellite Systems is being prepared by the Commission, which should be presented to the Council and the European Parliament before the summer. Synergies between these two fields of activities should be developed notably in the areas of R&D and product development.

2. Objectives of the Action Plan

In 1996 two major reports were made available by Industrial Groups: the High Level Industry Group³ and the IRDAC working group on space telecommunications and navigation⁴. The Reports underlined urgent need for political action in view of the important role of satellite communications in the Information Society.

Further to these initiatives, a meeting was held on 10 October 1996 in Paris by Commissioners Bangemann and Cresson with EU Ministers and Representatives of Industry with a view to reinforce co-operation in satellite communications between the private and public sector.

The meeting confirmed that Europe risks missing out on very important emerging markets for global satellite communications systems, for reasons attributed to a **number of factors**, including the regulatory and financial environment, industrial structures, and technological elements.

Consequently, **the need to react** was stressed by all participants. Actions should primarily emerge through private sector initiatives. The public partners on the other hand, including the Commission, **committed themselves to support, on the basis of their respective competences and roles**, these initiatives from the industry.

It was also recognised that, although European industry capabilities are in many respects similar to those of their competitors, a market perspective is lacking and a **strategic vision needs to be developed in close concertation with all relevant actors**, including industry, operators and Member States. The elaboration of such a vision is thus a primary objective of this Action Plan and should form the basis for action at the European level, which in view of the subsidiarity principle should concentrate on:

- **completing the EU internal market** and removing the remaining barriers to the creation of the home market for European satellite communications manufacturing and services industry;
- **improving co-ordination** between the actors in order to **reinforce the European position** in international fora and in international markets;
- **reinforcing market orientation of EU research and development** in the satellite communications sector and increasing synergies between R&D for various areas of satellite technology and applications.

The meeting also underlined the need to promote competition on European markets and to compete actively on international markets.

The Action Plan hereafter outlined is thus aimed at the elaboration of a strategic vision particularly relating to:

- **strengthening the role for European services and manufacturing industry in global, advanced broadband, multimedia satellite systems, services, and applications;**

³ "Report of Industry High Level Group on Space", chaired by Mr.Delye, 30 Jan 1996

⁴ "Final Report on Priority Actions for Satellite Communications and Satellite Navigation", IRDAC (Industrial Research and Development Advisory Committee of the European Commission) Working Group on Satellites, October 1996

- **advancing the European position in global satellite personal communications systems, services, and applications, particularly in relation to its integration in the future Universal Mobile Telecommunications Services (UMTS) environment.**

The following sections present a set of actions aimed at completing the Internal Market, reinforcing Europe's industrial and political position internationally, and reinforcing European research and development efforts.

3. *The completion of the Internal Market in satellite communications*

3.1. Identification of remaining barriers to the internal market

Despite the liberalisation of the EU satellite communication market, the penetration of satellite technologies for the creation of transborder services and applications remains significantly lower in the EU than in other industrialised countries. There are three main reasons for this:

- The implementation of relevant EU legal measures, especially the Directive liberalising the satellite communications services and equipment sectors, faces difficulties in certain Member States thereby hampering the development of a substantial home market for the European satellite communications industry⁵.
- There may be cases where existing or planned EU legal measures do not suffice to effectively create a competitive internal market and further measures may be required in order to ensure that the regulatory framework is completed.
- Recent reports indicate that insufficient harmonisation of authorisation procedures and the absence of co-ordination between national authorisation procedures are an insurmountable barrier to the use of satellite communications.

This lack of harmonisation may seriously hamper the imminent introduction of satellite personal communications and advanced broadband multi-media satellite services in Europe.

The following action will be taken:

A1. The Commission will step-up efforts to achieve full implementation of all EU legislation relevant for satellite communications. The Commission will also request industry to provide regular information on the basis of a systematic overview of all barriers found in relation to the introduction of satellite communications systems and services.

In particular, the timely and effective implementation of the Council and European Parliament Decision on Satellite PCS⁶ and the Council and European Parliament Directive on licensing⁷ will be a priority.

⁵ For example, Satellite Directive 94/46/EC (based on Article 90) is not yet implemented in 5 Member States: the Commission has started infringement procedures. The Satellite Equipment Directive 93/97/EEC (based on Article 100a) is not yet implemented in 4 Member States: the Commission has sent reasoned opinions to them.

⁶ Council adopted a Common Position with a view to adopt a "Decision of the European Parliament and of the Council on a co-ordinated authorisation approach in the field of satellite-personal communications services in the European Union". Final adoption foreseen for March 1997.

3.2. Review of effectiveness and timeliness of CEPT measures and procedures

The work achieved by the CEPT⁸ in recent years has contributed substantially to the further development of the satellite communications market in Europe. Furthermore, CEPT measures increasingly become a basis for the implementation of Union regulatory policies.

The CEPT framework of intergovernmental co-operation and voluntary adoption of its proposed measures by its members however have not yet proven to be sufficiently effective. The demands which the marketplace puts on CEPT will only increase with the imminent full liberalisation of the EU telecommunications market. As evidenced by the efforts in the area of satellite PCS, it appears that the harmonisation tasks in particular are more complex than anticipated whereas is of utmost importance for CEPT procedures and measures to be efficient and timely.

The following actions will be taken:

- A2. The Commission will request industry to identify regulatory barriers, allowing the Commission to formulate regulatory measures needed in the satellite communications sector, as well as report on the effectiveness of the measures taken to date.**
- A3. The Commission will request CEPT to accelerate efforts in the harmonisation of authorisation conditions and in harmonised use of frequency bands, to review its current structure and procedures with a view to increase the efficiency of its regulatory decisions making procedures and their implementation. The Commission will seek to improve its co-operative efforts with CEPT in order to enable CEPT to support better the EU policies.**

This concerns both CEPT measures which affect the internal market as well as those which affect the international position.

3.3. Review of effectiveness and timeliness of European standardisation efforts.

Since its creation in 1988, ETSI has been contributing very effectively to global standardisation in the satellite communications area, particularly in developing standards needed for type-approval purposes under EU legislation. The ETSI effort has largely concentrated on the standards for traditional satellite earth station equipment.

In view of the next generation of personal and advanced multimedia services, a redirection of ETSI's work programme may be required, aimed at integrating satellite communications into the overall mobile communication and intelligent network activities and into the multi-media environment.

The following actions will be taken:

- A4. The Commission will request ETSI to review its overall satellite communications work programme with the aim to ensure, whilst allowing innovation, continued, efficient and appropriate, standard development in accordance with the priority actions identified in this Action Plan with the aim to ensuring the development of a fully competitive market.**

⁷ Council adopted a Common Position a view to adopting a "Directive of the European Parliament and of the Council on a common framework for general authorizations and individual licences in the field of telecommunications services". Final adoption foreseen for March 1997.

⁸ CEPT = Conférence Européenne des Postes et Télécommunication

A5. In particular, the **standardisation of advanced, broadband multi-media satellite terminals** for mass market use is an urgent and continuing requirement which needs to be addressed with ETSI, CENELEC and industry.

3.4. Review of future functioning of the International Satellite Organisations

The International Satellite Organisations INTELSAT, INMARSAT, and EUTELSAT have been of major importance in the development of satellite communications over the last decades. As they face increased competition in large parts of the world, the ISO's are discussing their future role and structure in the evolution from the current intergovernmental nature of the organisations. The European Union needs to develop a common policy vis-à-vis the future of these organisations and their commercial spin-offs in order to develop a fully competitive framework in Europe. Moreover, the Commission will continue to review the International Satellite Organisations' structure and behaviour in the context of the Compton rules of the Treaty.

The following action is foreseen:

A6. On the basis of information to be supplied by Member States and the private sector, the Commission will continue to **review of the developments concerning the International Satellite Organisations** and take the appropriate steps with a view to ensure that these developments contribute to the achievement of a fully competitive satellite communications marketplace.

4. *The reinforcement of the European position at a international level*

In order to increase the viability of its satellite communications sector, the following major issues that Europe needs to address are:

- effective access to markets, served by increasingly global satellite systems, taking fully into account the results of the recently concluded WTO Negotiations on Basic Telecommunications which are a major step forward in this context. Most of the offers from the 69 countries in the Negotiations include the liberalisation of the satellite communications services sector. It will be crucial to ensure that the commitments made by each country are fully implemented;
- access to orbital slots and frequencies, needed to position satellites, particularly in relation to Ka-band spectrum for advanced, broadband multimedia satellites; The WTO agreement on basic telecommunications include, for most countries, specific provisions on the need to allocate frequencies in an objective and transparent manner and not more burdensome than necessary. It is essential that each country fully respects these GATS disciplines.
- a successful strategy of co-operation and partnerships with nations around the world as a basis to develop further the European technological base in global markets and for the social and economic benefit of these nations.

The following actions will be taken:

Improve market access:

A7. The Commission will now focus on the full implementation of the commitments of countries in the framework of the recently concluded WTO Negotiations on Basic

Telecommunications. Furthermore, the Commission will carry out, whilst consulting industry, an in-depth **analysis of trade policy implications regarding international satellite communications issues** and, for those areas where appropriate, make **proposals to remove in a systematic fashion the remaining market access barriers**. The Commission will also put forward **proposals for the co-ordination of positions of EU Member States** in international fora.

Secure access to orbits and frequencies:

- A8. The Commission will review the economic and trade issues related to orbits/frequencies in the light of the new GATS obligations and report to Council and Parliament.
- A9. The Commission, together with CEPT and industry, will review the European strategy in TI sectors i.e. standardisation, radiocommunications, development on satellite communications.

Enhance the industrial position in international markets:

- A10. The Commission, in partnership with industry, will assess on a systematic basis the global market opportunities, intellectual property rights issues relating to technology, and the role of potential European-led initiatives and formulate the appropriate supporting political actions.
- A11. The Commission, assisted by industry, will evaluate the opportunities arising from increased political and technological/industrial co-operation between EU and third countries including the US, Russia, Canada, Japan, China and developing countries. In view of the importance to associate the developing countries in this area, the Commission will also evaluate the use of the EU development funds. Moreover, the Commission will propose the necessary measures to stimulate a stronger presence of Europe in international markets.
- A12. The Commission will take the appropriate measures to promote effective competition in this field at a world level and continue to ensure that the operation of global satellite systems does not impede competition on the relevant European markets, in conformity with Treaty.

5. Reinforcement of European R&D and Applications Development

Considering the key role of R&D support in the sector, the reinforcement of the R&D and applications development is crucial and should aim at the implementation of market driven advanced satellite communication systems, services and applications. R&D and applications development could be carried out in the context of the 4th and of the preparation of the 5th Framework Programmes as well as the TEN-Telecom programme in conformity with the procedures in force, in close co-operation with industry (including SMEs), space agencies and Member States through the development of a long term plan and associated priorities.

Concrete actions to be taken in the R&D field could include:

- A13. Identification of possible complementary actions at the framework programme level with Space Agencies, industry and Member States ensuring complementarity of work programmes . Specific objectives will be:

- to ensure that the various policies adopt a coherent and synergetic approach based on those areas where the European Union dimension provides added value.
- to put in place co-operation mechanisms between the Commission, Space Agencies notably ESA, and industry to identify priorities and ensure complementarity of work programmes.
- to review, in order to improve complementarity of R&D actions, possibilities offered by Article 130 K and L..

A14. R&D actions in view of the early implementation of the recommendations already elaborated on the basis of market requirements and hereafter outlined:

- **Development of generic technologies in common with related sectors.** This concerns miniaturisation and cost optimisation of the basic building blocks allowing construction of communication payloads including baseband components, RF blocks, and subsystems, high power platforms technologies including power systems, software and networking technology. For the ground segment, a key factor is the development of technologies leading to the manufacturing of low cost user terminals. Experience is available in Europe in these fields but needs to be developed further.
- **Implementation of early demonstrations/pilot networks.** Pilot systems involving potential operators, terminal manufacturers and service providers should be stimulated, as they constitute the best way to prove the system's viability when deployed over a significant user base.
- **Specification of innovative systems supporting advanced services.** Recent system developments (particularly in the US) have shown how complex satellite systems will support advanced and improved services. The availability of enhanced tools would benefit European industry by allowing it to minimise design risks from the outset, especially in the fields of network management and reconfiguration of global constellations of many satellites.
- **Improvement of manufacturing processes.** Advanced technologies and applications deployment, and the development of mass production technologies is essential for the manufacturing of inexpensive terminals in a highly competitive mass market, especially by small and medium sized enterprises.
- **Identification of European R&D and applications development actions with value-added for Europe,** particularly those which contribute to industrial competitiveness as well as to social and economic cohesion.

The above R&D actions will also benefit other areas of space, notably in the field of navigation and earth observation. These synergetic effect are most useful and will be stimulated and closely coordinated in the context of the overall R&D action for space which is presently considered in the Commission Working Paper "Towards the 5th Framework Programme: Scientific and Technological Objectives" (COM(97)47 final).

A15. In the context of the preparation of the 5th Framework Programme, the need for pre-normative research in this field will be considered in order to assist notably in the area of a multimode (terrestrial-satellite) user terminal for broadband satellite mobile

applications and in the area of transmit-receive broadband terminals to be used in uncoordinated mode with broadband multimedia space communication systems.

6. Conclusions

The key importance for Europe of satellite communications and the need to move ahead and establish a private/public partnership in this area were identified through a number of studies and confirmed at a high level the meeting between Commission, Member States and industry.

The Commission anticipates that industry, in parallel to the work on the Action Plan and as a first step in its adoption, will move ahead and initiate the necessary actions within industry itself to facilitate the development of a longer-term vision of EU satellite communications policy in its international context and to implement the corresponding actions and priorities in co-ordination with CEPT, ESA, and other entities in the satellite sector.

- A16.** To facilitate the development of a longer-term vision of EU satellite communications policy in its international context, the **Commission will ensure an appropriate interface with industry comprising of representatives of relevant industry sectors** (network operators, service providers, equipment manufacturers, content providers, users and consumers)in view of supporting the Commission in the implementation of the Action Plan and on the priorities and requirements for their supporting actions.

The following tentative timeschedule is foreseen for the Actions presented in this plan:

| | | |
|----|--|-----------------------------------|
| 1. | Internal Market | |
| | ⇒ implementation of legislation: | January 1998 |
| | ⇒ requests to industry, CEPT, ETSI: | July 1997 |
| | ⇒ first industry input: | October 1997 |
| | ⇒ completion CEPT review: | October 1997 |
| | ⇒ completion ETSI review: | October 1997 |
| 2. | International level | |
| | ⇒ Implementation of WTO obligations: | January 1998 ⁹ |
| | ⇒ analysis general trade policy implications: | July 1997 |
| | ⇒ review trade issues orbits/frequencies: | July 1997 |
| | ⇒ review relations with third countries: | end 1997 |
| 3. | R&D and applications development | |
| | ⇒ completion of a first review of complimentary actions: | October 1997 |
| | ⇒ Actions under 4th Framework Programme: | last half 1997 |
| | ⇒ Actions for 5th Framework Programme: | according to time tables foreseen |
| 4. | Creation of an appropriate interface EC-industry | May 1997 |

A number of actions are of a continuous nature and will be reviewed regularly in consultation with industry.

⁹ Unless otherwise stipulated in the agreement

With this Communication, the Commission presents its EU Action Plan: **Satellite Communications in the Information Society.**

The Commission underlines its belief that coherent, joint Actions between private and public partners as well as the political support of EU Member States, Council, and European Parliament, will provide an important boost to this high technology sector vital for employment, competitiveness and control over end-to-end service provision. The Commission further believes that the conditions must be created to ensure that effective competition is created at all levels of the market in the satellite sector to enable the European Union to play an important role in putting in place the much needed global information infrastructures and associated services and applications which are critical to the Information Society and the world's economic system.

Summary of the Actions in Satellite Communications

The completion of the Internal Market

- A1.** The Commission will step-up efforts to achieve full implementation of all EU legislation relevant for satellite communications. The Commission will also request industry to provide regular information on the basis of a systematic overview of all barriers found in relation to the introduction of satellite communications systems and services.
- A2.** The Commission will request industry to identify regulatory barriers, allowing the Commission to formulate regulatory measures needed in the satellite communications sector, as well as report on the effectiveness of the measures taken to date.
- A3.** The Commission will request CEPT to accelerate efforts in the harmonisation of authorisation conditions and in harmonised use of frequency bands, to review its current structure and procedures with a view to increase the efficiency of its regulatory decisions making procedures and their implementation. The Commission will seek to improve its co-operative efforts with CEPT in order to enable CEPT to support better the EU policies.
- A4.** The Commission will request ETSI to review its overall satellite communications work programme with the aim to ensure, whilst allowing innovation, continued, efficient and appropriate, standard development in accordance with the priority actions identified in this Action Plan with the aim to ensuring the development of a fully competitive market.
- A5.** In particular, the standardisation of advanced, broadband multi-media satellite terminals for mass market use is an urgent and continuing requirement which needs to be addressed with ETSI, CENELEC and industry.
- A6.** On the basis of information to be supplied by Member States and the private sector, the Commission will continue to review of the developments concerning the International Satellite Organisations and take the appropriate steps with a view to ensure that these developments contribute to the achievement of a fully competitive satellite communications marketplace.

The reinforcement of the European position at an international level.

- A7.** The Commission will now focus on the full implementation of the commitments of countries in the framework of the recently concluded WTO Negotiations on Basic Telecommunications. Furthermore, the Commission will carry out, whilst consulting industry, an in-depth analysis of trade policy implications regarding international satellite communications issues and, for those areas where appropriate, make proposals to remove in a systematic fashion the remaining market access barriers. The Commission will also put forward proposals for the co-ordination of positions of EU Member States in international fora.

- A8.** The Commission will review the economic and trade issues related to orbits/frequencies and report to Council and Parliament.
- A9.** The Commission, together with CEPT and industry, will review the European strategy in ITU sectors i.e. standardisation, radiocommunications, development on satellite communications.
- A10.** The Commission, in partnership with industry, will assess on a systematic basis the global market opportunities, intellectual property rights issues relating to technology, and the role of potential European-led initiatives and formulate the appropriate supporting political actions.
- A11.** The Commission, assisted by industry, will evaluate the opportunities arising from increased political and technological/industrial co-operation between EU and third countries including the US, Russia, Canada, Japan and developing countries. In view of the importance to associate the developing countries in this area, the Commission will also evaluate the use of the EUdevelopment funds. Moreover, the Commission will propose the necessary measures to stimulate a stronger presence of Europe in international markets.
- A12.** The Commission will take the appropriate measures to promote effective competition in this field at a world level and continue to ensure that the operation of global satellite systems does not impede competition on the relevant European markets, in conformity with Treaty.

Reinforcement of EU R&D support and Applications Development

- A13.** Identification of possible complementary actions at the framework programme level with Space Agencies notably ESA, industry and Member States ensuring complementarity of work programmes .
- A14.** R&D actions under the Fourth Framework Programme and use of such actions as preparatory work for the Fifth Framework Programme in view of the early implementation of the recommendations already elaborated on the basis of market requirements.
- A15.** In the context of the preparation of the 5th Framework Programme, the need for pre-normative research in this field will be considered in order to assist notably in the area of a multimode (terrestrial-satellite) user terminal for broadband satellite mobile applications and in the area of transmit-receive broadband terminals to be used in uncoordinated mode with broadband multimedia space communication systems.

Conclusions

- A16.** To facilitate the development of a longer-term vision of EU satellite communications policy in its international context, the Commission will ensure an appropriate interface with industry comprising of representatives of relevant industry sectors (network operators, service providers, equipment manufacturers, content providers, users and consumers) in view of supporting the Commission in the implementation of the Action Plan on the priorities and requirements for their supporting actions.

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