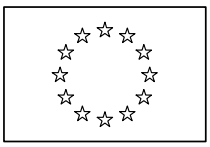

COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, 18.2.2004
COM(2004) 112 final

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL

Progress report on the GALILEO research programme as at the beginning of 2004

Introduction

The GALILEO research programme (GALILEO programme) has a threefold dimension: it is technological, political and economic. All sectors of the economy and the various components of our society are affected by the development of satellite radionavigation which, according to all the estimates, is expected to grow and grow. The market in products and services linked to this technology, which is already of the order of €10 thousand million per year, is growing at an annual rate of 25% and is due to rise to about €300 thousand million in 2020. Some 3 000 million receivers should be in service by 2020. The number of jobs created as a result of the European system of satellite radionavigation should be in the region of 100 000. Satellite radionavigation has become part and parcel of the daily life of European citizens, featuring not only in their cars and portable telephones but also in their banking habits and the civil protection systems which look after their security – all of which confers on the GALILEO programme an additional citizens' dimension.

The three successive phases in the programme, the total cost of which comes to €3.2 thousand million, are the following:

- a development and validation phase covering the development of the satellites and the system's ground components, as well as validation in orbit. This phase runs from 2002 to 2005. Half of its cost of €1 100 million is being met by the European Community, with the other half coming from the European Space Agency;

- a deployment phase covering 2006 and 2007 and involving the building and launching of the satellites and the establishment of the entire ground-based component. The cost of €2 100 million should be borne mainly by the future system concessionaire;

- a commercial operating phase due to begin in 2008.

The European Parliament and the Council are briefed regularly by the Commission on the GALILEO programme. On 29 January 2004, on the basis of the last two communications, 1 the European Parliament adopted a resolution supporting the Commission's approach and reiterating the strategic importance of this major infrastructure project for the future of Europe. On 5 and 6 December 2002 and 5 June 2003, 2 for its part, the Council adopted conclusions encouraging the policy pursued by the Commission both towards the EGNOS programme and towards the GALILEO programme.

As far as the programme is concerned, 2003 has been a decisive year marking, in particular, the setting-up of the Galileo Joint Undertaking (the Joint Undertaking)[3] and the commencement of its work, the order of the first satellites, the promotion of international cooperation, the confirmation of frequencies allocated and preparations for the deployment and operating phases.

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1 Communication of 24 September 2002 on the state of progress of the GALILEO programme (COM(2002) 518 final) and communication on the integration of the EGNOS programme in the GALILEO programme (COM(2003) 123 final).

2 Document 10736/03

3 Setting up of the Galileo Joint Undertaking by Council regulation 876/2002 published in OJ L 138, 28.05.2002, page 1

The communication revolves round the following three points:

– progress of the development phase;

– development of international cooperation;

– transition to the deployment and operating phases.

1. THE DEVELOPMENT PHASE IS AT A VERY ADVANCED STAGE

Having weathered the storm associated with the difficulties linked to determining the financial scale within the European Space Agency, the development phase of the GALILEO programme is now at a very advanced stage. The Joint Undertaking has been fully operational since summer 2003. The technical studies and research work are actively going ahead, encouraged by the positive results achieved at the World Radiocommunication Conference held in June 2003.At the same time, the integration of the new Member States and candidate countries in the GALILEO programme is well under way.

1.1. The actual setting-up of the Joint Undertaking

1.1.1. The initial work of the Joint Undertaking

Following the agreement on 26 May 2003 within the Council of the European Space Agency on the respective financial contributions of the Agency Member States to the development phase, the steps necessary for setting up the Joint Undertaking were taken without delay.

On 16 June 2003, Mr Rainer Grohe was appointed Director of the Joint Undertaking by the latter's Administrative Board. On 15 July 2003, he put forward ideas on his organisation chart and adopted his budget for 2003 and 2004.

The Joint Undertaking has been fully operational since summer 2003. Its staff is made up 30 or so persons spread over four departments responsible for technical matters, commercial development, award of concessions and administration and finance, respectively. Its premises are situated in Brussels. On 28 July 2003, in accordance with Article 3 of its Statutes, it signed an agreement with the European Space Agency on the activities to be carried out by the latter during the development phase with regard to the space segment and the earth segment associated with the system. It also launched the first call for proposals on the use of the funds provided under the Sixth Framework Programme for research and development (cf. point 1.2.3 below) and the procedure for awarding concessions with regard to the programme development and operating phases (cf. point 3.1 below).

1.1.2. The question of exemptions

At the Transport Council meeting held on 26 March 2002, and with regard to the Regulation setting up the Joint Undertaking, as finally adopted on 21 May 2002, the Council and the Commission, on the one hand, and Belgium, on the other, made a declaration of commitment to exempt the Joint Undertaking and its staff from all taxes and social charges or similar obligations, to the extent that this was compatible with Community law and national law.

As a result of the discussions embarked on by the Commission with the Belgian authorities, the question of VAT and excise duties was swiftly resolved.

As regards social contributions and deductions at source to be levied by the Joint Undertaking on staff remunerations, a formal proposal from the Belgian authorities is still pending, [4] notwithstanding several meeting, exchanges of letters and the issuing of a reminder of the outcome of the Transport Council meeting held on 5 December 2003. The sum of the amounts in question is far from negligible and comes to about €5 million a year. It would be inconceivable if the Community appropriations allocated to the GALILEO programme were to be used in part for payment, by the Joint Undertaking, of taxes and other charges for the benefit of the Member State in which its head office is situated.

1.2. Continuation of the technical studies and research work

The latest studies undertaken as part of the definition phase are now complete. The technical studies and research work being carried out in the context of the development and validation phase have begun in accordance with the prearranged timetable, both as regards the infrastructure itself and the associated downstream segment. At the same time, the EGNOS system will soon be operational, and a European radionavigation schedule is in preparation.

1.2.1. Recent work under the definition phase

The "Galilei" and "GalileoSat phase B2" studies were concluded on 10 and 11 July 2003.

The "Galilei" study has helped to enshrine the presence of the GALILEO system[5] on the international stage, such as UIT[6] and ICAO[7], to conduct detailed analyses and simulations on the question of interoperability with other radionavigation systems, to lay down specifications for the local components of the infrastructure and to identify more precisely the international markets in equipment and services.

The "Galileosat phase B2" study, for its part, has enabled the European Space Agency to define in great detail the space infrastructure and the associated ground-based segment.

1.2.2. Work and studies relating to the basic infrastructure

The in-orbit validation phase began in earnest on 11 July 2003 with the signature, by the European Space Agency, of the contracts for the acquisition of the first two experimental satellites. The first of these satellites is due to be launched before the end of 2005. By transmitting in orbit before summer 2006, these two satellites will ensure the maintenance of the frequency allocations obtained at the last two World Radiocommunication Conferences. They will also help to validate the essential functions of the on-board equipment, notably the signal generator and the atomic clocks.

In the event of failure or malfunction affecting any of them, the two satellite control systems will ensure the allocation of the frequencies obtained, while at the same time introducing an element of competition among the various manufacturers.

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4 For the moment, two possibilities can be envisaged: either a contribution paid by Belgium to the GALILEO Joint Undertaking and equivalent to the amount of the charges paid by the latter, or the application by Belgium of the Protocol on Privileges and Immunities, on the grounds that the Joint Undertaking was set up by a Community Regulation on the basis of Article 171 of the Treaty.

5 GALILEO system : infrastructure composed by the satellites of the constellation and terrestrial stations associated to its functioning.

6 Union Internationale des Télécommunications

7 International Civil Aviation Organisation

The European Space Agency has also embarked on the preliminary part of the development and validation phase. During 2004, it will be launching the calls for tender covering the whole of this final phase. Under the supervision of the Joint Undertaking, it will make sure that the contracts respect the principles of non discrimination, transparency and equal distribution of work, taking into account the European nature of the programme.

At the same time, the European Space Agency is pursuing technological developments involving various components of the space segment and the ground-based segment of the infrastructure, as well as the construction of a variety of simulators.

1.2.3. Work and research relating to satellite radionavigation applications

Following the research carried out under the Fifth Framework Programme for research and development on satellite radionavigation applications, including those of the technological programme of the Information Society, the Joint Undertaking has signed contracts resulting from the first call for proposals on the use of the funds provided under the Sixth Framework Programme for research and development. Five research areas were defined in conjunction with the European Space Agency's ARTES[8] programme: development of receivers, experiments involving the local components of the infrastructure, promotion of future services generated by the GALILEO system thanks to the use of EGNOS, development of the satellite radionavigation market and definition of the tasks assigned to the system in the various sectors of activity.

Furthermore, numerous players involved with satellite radionavigation have been consulted over the last few months, such as motor vehicle manufacturers, mobile telephone companies, digital cartography producers, persons with reduced mobility, manufacturers of work-site machines, stakeholders in intelligent transport, agricultural and fishing interests, insurers and banking institutions, authorities responsible for civil protection and the railway community.

Owing to its unique characteristics, the future European system of satellite radionavigation offers new monitoring, control and management possibilities in a wide variety of sectors, thereby authorising new services and new rules. Thus, the proposal for a Directive on electronic road toll systems makes wide use of the technical capabilities associated with satellite navigation. A detailed examination of the Community rules likely to benefit from the services generated by the GALILEO system is currently under way.

1.2.4. EGNOS will soon be operational

The development and finalisation of the EGNOS system went ahead satisfactorily during 2003. The first experimental signal was transmitted on 6 June 2003 and, since that date, the setting-up of the entire system has been gradually completed.As at November 2003, the following were in place:two of the four main monitoring centres envisaged, viz. Langen in Germany and Torrejon in Spain; three of the six NLES[9] transmitting stations envisaged, viz. Goonhilly, Scanzano and Torrejon; and more than 16 of the 34 RIMS[10] signal receiving stations envisaged.

A number of tests demonstrating the possibilities offered by EGNOS were completed successively during 2003 in several European countries, notably in France and Switzerland, as

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8 Advanced Research

9 Navigation Land Earth Station

10 Reference and Integrity Monitoring Stations

well as in Africa and Latin America. Other experiments are in progress or in preparation, e.g. in China, South Africa and in the Mediterranean countries.

Following the Operational Readiness Review due in April 2004, the services offered by EGNOS will become permanent. It will then be possible to embark on the system validation and certification procedures in certain very exacting sectors with regard to security and reliability, such as civil aviation and maritime transport.

As regards the institutional and financial aspects, the Council, in its conclusions adopted on 5 June 2003, asked to place the EGNOS programme under the control of the Joint Undertaking, in order to guarantee the integration of EGNOS in GALILEO. In the same conclusions, the Council also asked for EGNOS to benefit from public funding from various sources between 2004 and 2008 and that the European Community would continue to participate in the funding of EGNOS. The European Space Agency and the Joint Undertaking are currently preparing the financing in collaboration with Eurocontrol and the national civil aviation authorities operating within the EOIG.[11]

Lastly, it should be pointed out that, for air traffic control purposes, the Eleventh ICAO Air Navigation Conference held in Montreal at the end of September 2003 came out largely in favour of the use of procedures based on the "augmentation" systems, the European component of which is none other than EGNOS. Moreover, the ICAO has confirmed that, ultimately, satellite radionavigation should become the single tool for use in air traffic management.

1.2.5. The European Radionavigation Plan

Radionavigation systems are a crucial safety element in numerous sectors. Consequently, it would appear necessary, as a result of the elaboration of a European Radionavigation Plan, to harmonise the information available on existing radionavigation systems, their period of validity and the technical transitions envisaged, as well as their characteristics and their redundancy capacity vis-à-vis other systems. It should be noted that the two countries that have a satellite radionavigation system, i.e. Russia and the United States, already possess such a radionavigation plan.

The Commission has launched a study which should provide exhaustive information that is essential for drawing up a European Plan. This study will contribute to the integration of the system issued from the GALILEO programme in existing navigation systems, notably terrestrial systems. It will permit the launching and harmonisation of the technical certification procedures from the EGNOS and GALILEO programmes with regard to transport by air, land and sea . It should be noted that the future European Radionavigation Plan does not cover just the Member States of the European Union; it also concerns all neighbouring countries of the Union.

1.3. Outcome of the World Radiocommunication Conference held in June 2003

On the occasion of the World Radiocommunication Conference held in June 2003, the European Community had two satellite radionavigation objectives designed to ensure that the future GALILEO system could generate all the services envisaged: on the one hand, to obtain confirmation of the spectrum of frequencies allocated in 2000 to satellite radionavigation as a

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[11] EGNOS Operation and Infrastructure Group

whole; on the other, to ensure that within this frequency spectrum, distribution among the different systems should not prove disadvantageous to the European system. On both these points, the Community has good reason to welcome the results achieved.

1.3.1. Confirmation of frequencies allocated to satellite radionavigation

The principal aim was to ensure that the GALILEO system and the other satellite radionavigation systems can coexist alongside the systems used by civil aviation without causing unacceptable mutual interference. Two frequency bands were involved. For one of them, the discussions resulted in a solution consisting in the provision of guarantees of reciprocal protection based on coordination, rather than through operating restrictions. In the case of the other band, the agreement finally reached stipulates that all satellite radionavigation systems must comply with maximum power emission limits. These solutions were approved both by the satellite radionavigation system operators and by the aeronautical community.

The Conference confirmed and set out in detail the conditions governing the use of the frequency spectrum allocated to the satellite radionavigation systems, in such a way as to guarantee the GALILEOoperating conditions while at the same time protecting other major sectors such as civil aviation. The signal specifications worked out during the definition studies of the system were confirmed.

1.3.2. Establishment of an equitable coordination procedure

It was of fundamental importance that access to the spectrum of frequencies allocated to the various satellite radionavigation systems should be equitable, should be based on the principle of interoperability and should provide for mutually agreed degrees of scrambling.

The Conference debated this point at greater length, all the more so as the international landscape is evolving from a situation characterised by the historical monopoly of the American GPS system vis-à-vis an environment where several systems will coexist. The position constantly championed by the European Community in favour of impartial multilateral coordination by the International Telecommunication Union (the so-called “Article 9” approach) was adopted. The cohesion, competence and determination of the European delegations proved decisive in this respect. The procedures defined by the International Telecommunication Union will apply with effect from 1 January 2005.

1.4. The integration of the new Member States and the candidate countries is well under way

Allowing for the fact that the new Member States of the European Union will play a key role in the GALILEO programme, the European Commission saw a clear need to provide for their gradual integration in the GALILEO and EGNOS programmes through concrete actions starting with the conference entitled “GALILEO for an enlarged Europe”, which was held in Warsaw in May 2003.

The presentations and declarations made by the representatives of the new Member States on the development of satellite radionavigation have demonstrated just how much they are interested in using and, to a certain extent, developing the services linked to this technology, particularly in the sectors of transport, energy, geodesy and science in general. In this context, initiatives have been elaborated on an industrial scale so as to ensure the full participation of these countries in the GALILEO programme as from 1 May 2004, both through the

Framework Programme for research and development and the invitations to tender launched by the European Space Agency.

2. INTERNATIONAL COOPERATION TAKES OFF

As the Council has stressed on various occasions, international cooperation is an essential element designed to ensure that maximum benefits are derived from the GALILEO programme. Given its range of features, the European satellite radionavigation system will offer a hitherto unequalled international public service. Third countries coming forward in ever-increasing numbers asking to be associated with the project have definitely got their priorities right. The Agreement with China was, in this respect, a decisive element, while contacts with the major regions of the world are intensifying. At the same time, cooperation with the two countries already in possession of a satellite radionavigation system is on the increase; the conclusion of negotiations with the United States is one of the European Union's priorities.

2.1. The principles on which international cooperation rests

The interest shown by third countries with regard to the future European system of satellite radionavigation continues to grow. However, the reason underlying international cooperation largely transcends the need to meet the demands of this or that country and, in fact, is fundamental to ensuring interoperability with existing systems, in order to promote European industrial and political know-how, stimulate the provision of system applications, penetrate the markets of third countries and install components of the terrestrial segment in certain parts of the globe. The fact that more and more third countries are associated with the programme and hence share the European Union's interests in promoting it, not least in the international bodies, has resulted in a reduction in the technical and political risks involved. The close links forged with future users worldwide make it possible to define with the greatest degree of precision the services likely to comply with the requirements. Lastly, international cooperation involves a strong political dimension, since it enables numerous third countries to be associated with the management of a strategic infrastructure.

In order to meet the demands of third countries and derive maximum benefit from the advantages of international cooperation, the Commission, in accordance with the political guidelines laid down by the European Parliament and the Council, is pursuing two approaches simultaneously: the bilateral approach and the regional approach.

The bilateral approach relies on the conclusion of Agreements between the European Community and those countries which have special skills in the field of satellite radionavigation. These Agreements, concluded after negotiations conducted on the basis of the Council's directives, define a broad framework of cooperation combining institutional, regulatory, industrial, technological and financial aspects. An initial Agreement was signed on 30 October 2003 between the European Community and its Member states on the one hand, and the People's Republic of China on the other hand.

The regional approach, on the other hand, is directed at countries whose main interest in the GALILEO programme lies in the fact that they are future users of the system. More often than not, it draws on regional and multilateral cooperation structures which already exist.

The bilateral and regional approaches are based on common principles. Thus, the actions carried out take full account of the requirements associated with the control and protection of

the system as well as the European Community's commitments regarding export control and non-proliferation. The GALILEO Security Board, commonly referred to as GSB and made up of security experts, supports the Commission's action in in drafting the texts discussed with third countries on these matters. Sensitive activities, such as those affecting the security of the system, remain outside the cooperation framework. Provision has been made, moreover, for the conclusion of security agreements with the various associated countries once the appropriate European authority with competence in this field has been set up (cf point 3.2). The agreements concluded with third countries mainly foresee the participation by these countries in technical and industrial activities through a participation to the Joint Undertaking. The modalities of this participation are then decided on a case by case basis in close consultation with the relevant bodies from those countries, the Joint Undertaking and the European Space Agency.

The financial participation of third countries associated with the programme represents a preliminary to their involvement and will make it possible to complete the financing of future phases. Like the Community contribution, all financial participation by third countries will be managed by the Joint Undertaking, guarantor of the unique way in which the programme is managed. To this end, following the conclusion of an Agreement with a third country, the Joint Undertaking can start discussions in accordance with the procedure foreseen in article 5 of the Council Regulation No 876/2002.

2.2. An exemplary Agreement with China on bilateral cooperation

Following the authorisation given to the Commission by the Council to start negotiations in March 2003, an initial cooperation agreement was signed with China on 30 October 2003 on the occasion of the summit between the European Union and this country. This, in itself, is an important step, in that the Agreement represents a model for the rapid association of other third countries. The areas of cooperation covered by the Agreement are legion, ranging from Chinese support for the regulatory aspects of the project, notably as regards certification, frequencies and intellectual property, to scientific and industrial action. At the financial level, China has indicated its readiness to contribute the sum of €200 million to the programme.

The forthcoming stages in the cooperation process will consist in defining simultaneously China's place within the Joint Undertaking and its industrial and scientific role. On the first point, the Chinese's participation in the Joint Undertaking will comply with the procedure provided by article 5 of Regulation 876/2002. The Supervisory Board of the Joint Undertaking will be involved in this initiative with a view to preparing a decision to be taken by the Council. On the second point, steps should be taken to determine the actual conditions governing the participation of Chinese experts and companies in the development and deployment phase work, using the Chinese's financial contribution. Discussions, in which the European Space Agency is closely involved, are being conducted on this subject by the Joint Undertaking with the Chinese partners. The ultimate aim of these discussions is to identify those elements in the programme that are likely to be the subject of such involvement. Choices will be made on the basis of the special skills which associated third country participants may provide, without in any way weakening the industrial policy character of the programme for European industry.

Specific cooperation initiatives have already been embarked on. Thus, a joint training centre (China-Europe GNSS Training and Technical Cooperation Centre) was inaugurated in Beijing on 19 September 2003 to promote joint activities involving training, experiments, applications, industrial cooperation and marketing affecting the future European system. In

addition, a series of tests based on EGNOS stations and pilot applications in the priority areas of rail, inland waterway and maritime transport is due to be launched in China.

The Agreement with China has triggered cooperation requests from other third countries interested in being involved in the development of the GALILEO system. Accordingly, the Council has formally authorised the Commission to enter into negotiations with a view to preparing a cooperation agreement with India and Israel. The negotiating directives for these two countries were drawn up on the same basis as those adopted for China in March 2003. These two new mandates follow on from exploratory approaches made by the Commission at the request of the interested countries. Similar steps are being taken involving other countries, notably South Korea, Brazil, Japan, Canada, Australia, Mexico and Chile. According to the same schedule as was used in the case of China, India and Israel – assuming that these contacts result in a formal application for association – , the Commission will first notify the Council and then submit recommendations with a view to obtain the authorisation to conduct the appropriate negotiations.

Furthermore, Switzerland and Norway, which are already associated with the GALILEO programme through the European Space Agency, informed the Commission in December 2003 of their interest in starting discussions on becoming more closely associated with the programme, not least through involvement in the Joint Undertaking.

2.3. Closer cooperation with the major regions of the world

With a view to deriving maximum advantage from the GALILEO and EGNOS programmes, the priority aim of regional cooperation is to establish a dialogue with future users in the countries concerned, based mainly on experimental and training campaigns conducted in different regions of the world.

2.3.1. The Mediterranean region

One of the projects envisaged under the MEDA Programme covers satellite radionavigation training and experimental actions in the Mediterranean Basin. These actions should have a budget of nearly €5 million and should begin in 2004. In February 2003, during the project preparatory phase, the Commission held the first Euro-Mediterranean seminar on satellite radionavigation. The main aim of this seminar was to promote awareness among decision-makers, service providers and local industrialists regarding the stakes represented by the EGNOS and GALILEO systems for the Mediterranean region. A regional cooperation office is also due to be set up with the aim of promoting training and industrial cooperation actions in the region. Egypt will host this centre.

2.3.2. Latin America

Since 2001, the European Union has been establishing links with Latin America in the field of satellite radionavigation. Through a programme financed under the Community budget, it has been possible to bring together European industrialists and local authorities responsible for transport and to carry out feasibility tests based on the EGNOS experimental signal. The positive results achieved through these tests have confirmed the interest shown by countries in the region in becoming associated with the GALILEO programme.

Taking into account the region's importance and potential, a new action is to be conducted by the Joint Undertaking, mainly with a view to establishing a network of training centres,

supporting the regional technical cooperation plan devised by the ICAO, organising experiments in various sectors of activity and encouraging industrial cooperation.

2.3.3. Africa

The establishment of an international satellite radionavigation system is one of the explicit cooperation objectives of the transport policy strategy under the partnership agreement between the European Community and the ACP countries signed in Cotonou in June 2000[12]. In Africa, satellite radionavigation provides a means for developing the civil aviation sector, thereby benefiting the African economies, notably commerce, tourism and the management of natural resources. It also offers an opportunity to improve security in the region and helps reduce the amount of investment required for the creation of transport infrastructures.

The European Union and the African civil aviation authorities have enjoyed a productive relationship over the last few years. The experiments carried out from a terrestrial infrastructure and aboard aircraft in the Dakar region confirm Europe's commitment to extend to the whole world the use of satellite radionavigation systems. Various studies financed by the European Community have looked at the possibility of extending to Africa access to satellite radionavigation services. The African civil aviation authorities (AFCAC, ASECNA, SADC), with the ICAO's support, have now set themselves the aim of putting this technology to use.

The work carried out in this region of the world will be speeded up this year under the guidance of the Joint Undertaking. The use of the systems EGNOS and GALILEO will affect not just the civil aviation sector but many other sectors as well, and will involve the development of satellite radionavigation services in areas as diverse as transport, agriculture, fisheries, civil engineering, the environment, etc.

2.4. Negotiations with countries (United States and Russia) already in possession of a satellite radionavigation system

As regards both of the third countries which already have their own international satellite radionavigation system, the negotiations are not only pursuing the same objectives as is the case with the other third countries, but they are also seeking to ensure the technical compatibility and interoperability of their system with the GALILEO system.

2.4.1. Russia

During the summit between the European Union and Russia held in May 2003, the European Union once more expressed its wish to continue the negotiations begun with Russia in 2000 and to conclude a cooperation agreement with that country. Up to now, the discussions have concentrated on the technical and industrial aspects.

Steps must now be taken to give these discussions a more political dimension to take into account the conditions of use of the international satellite radionavigation systems, the various ways of enabling the GALILEO system and GLONASS to coexist and the steps being taken

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[12] Point 2.2 of the Compendium on cooperation strategies devoted to the development of transport and drawn up in accordance with Article 20.3 of the Cotonou Agreement is worded as follows: "*At regional level, particular attention will be paid to the provision of support for improving the reliability and safety of maritime and air transport, as well as contributing to a global navigation satellite system interoperable with the European Geostationary Navigation Overlay Service.*"

to modernise GLONASS. In order to facilitate the resumption of the negotiations, the Commission has provided the Russian authorities with a draft agreement.

Along the same lines as the dialogue on energy, cooperation in this key area would actively promote economic and political integration between the European Union and Russia.

2.4.2. USA

Concluding the negotiations with the USA has been the priority for the European Union since discussions began, four years ago, on how to operate the European GALILEO system and America's GPS system side by side. Initially, the USA disputed the merits of the Galileo programme itself. Over the last 18 months, however, with the aid of the technical working party set up on compatibility and interoperability, considerable progress has been made on all the items under discussion. The biggest obstacles to an agreement between the two parties have now been removed. The USA recognises the importance of the European system for satellite radionavigation users.

First, with regard to the overlay of signals on the same frequency band, for military security reasons the USA was against assigning the GALILEO system a signal modulation which would partly overlap with that of the GPS's future military signal, "code M". The European experts in the Signal Task Force were able to show their American colleagues that there would be no harmful interference between the signals of the European system and those of the GPS system and that the two systems are technically perfectly compatible, including in terms of time references and geodesy. Another major breakthrough on the road to an overall agreement came at two, partly classified, meetings, the first held in London on 4 and 5 September 2003, the second in The Hague on 19 November 2003, when a solution was found for the governmental service signal.

Two further questions remain to be solved: the coexistence of the open signal of the GALILEO system and the GPS's military signal in the event of a crisis, and the prospects for further improving the signals of the European system.

On the first point, it is important to highlight the fact that some applications of the open service require great precision, as for the interurban applications, emergency calls using the European 112 number or the guidance assistance for the blind. This implies choosing a very high-performance signal, guarantee for the commercial success of the European system, which will have to be secured in the Agreement. However, the military authorities need to be able to jam the open signal of the GALILEO system locally in a conflict zone, while maintaining the integrity of the GPS's military signal in the same zone. During the last discussions held in Washington on 29 and 30 January 2004, both parties have recognised the interest to exploit the same signal to develop fully interoperable receivers. It now seems possible to reach a compromise based on the choice of identical signals, with the possibility of further improvement.

On the second question precisely concerning the possibility to improve the signals, the comprehensive agreement emerging from the discussions must provide an effective, transparent, two-way procedure for agreeing on how to optimise the performance of the European and American systems, taking account of US national security concerns. However, this should not include a right of veto by either partner over the other.

On interoperability, the objective of the European Community is to obtain maximum interoperability between the GPS and GALILEO systems, to the greatest benefit of users. The

satellite ground control components of the two systems will, of course, remain separate and independent. US and European experts discussed a variety of technical issues which have now been resolved, including time references: the signals from each system will include a parameter allowing perfect synchronisation of the signals. Thanks to this fundamental achievement owners of a single receiver will be able to make use, fully transparently, of both systems combined.

Finally, with regard to trade, the European Community is seeking to create a non-discriminatory commercial environment for satellite radionavigation for both the American GPS system and the European GALILEO system alike. Considerable progress has been made towards an agreement. The USA now recognises that the rules of international trade apply to satellite radionavigation. In turn, the European Community has agreed to specific provisions to close any gaps in the multilateral rules.

The progress made during the latest negotiations is a hopeful sign that a comprehensive agreement will be reached very soon.

3. MOVING AHEAD TO THE DEPLOYMENT AND OPERATION PHASES

With the Joint Undertaking now in operation, technical work continuing, international cooperation in full swing and an agreement about to be concluded with the USA, the next step is actively to prepare for the deployment and operation phases for Galileo, which will start in 2006 and 2008 respectively.

3.1. Call for tenders for the concession for the system

The initial results of the procedure for awarding the concession for the system are extremely encouraging. At the same time a clearer picture is emerging of ways of financing the deployment and operation phases.

3.1.1. Concession procedure

The procedure for awarding the concession for the deployment and operation phases of the Galileo programme is managed by the Joint Undertaking. It started in earnest on 17 October 2003 with the publication of a concession notice in the Official Journal[13]. However, even before the Joint Undertaking started operations, to avoid delaying the programme the Commission had taken two preliminary measures.

First, on 22 February 2003 the Commission published a call for expressions of interest for the concession of the implementation and the management of the GALILEO system[14]. Some 80 undertakings replied. Then on 18 March 2003 the Commission organised a briefing session for undertakings which wished to take part in the programme. Around 500 representatives from industry attended this event to hear about development of the programme, the stages leading to selection of the future concession-holder, and the many opportunities which satellite radionavigation can offer.

The preselection phase was launched on 17 October 2003 and is divided into two stages: first short listing, then competitive negotiation.

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13 OJ S 200, 17 October 2003.

14 OJ C 43, 22 February 2003, page 12.

The first was conducted by the Joint Undertaking, which examined the four tenders received by the deadline and short listed the candidates for the second stage.

The preselection criteria were:

- the ability of the candidates to fund both the deployment of the infrastructure and the management of the infrastructure during the operation phase; in particular, each candidate was required to submit a business plan covering the whole period of the concession;

- the ability of the candidates to develop and promote the use of the GALILEO system at a global level, in particular based on their experience and international alliances;

- the account taken of the interests of the public authorities.

The deadline set for receipt of application packs was 5 December 2003 and the packs were opened at the Joint Undertaking headquarters on 9 December 2003. The four tenders registered were eligible.

Each tender was submitted by a consortium consisting of a limited number of lead partners, backed up by a cluster of companies from the most diverse fields, particularly financial institutions or undertakings working on various applications of satellite radionavigation.

None of the four consortia bidding doubted the potential of the European system of satellite radionavigation to generate substantial commercial revenue and each was willing to fund a considerable proportion of its contribution from its own assets. The commercial and governmental services offered by Galileo together with the attached intellectual property rights are considered particularly significant sources of revenue. Beyond that, the applicants took account of the worldwide dimension of the project and of its implications in various fields of economic activity. Some of the tenders will even enlist partners from outside the European Union.

The results of the call for tenders must be rated as extremely encouraging. They vindicate the choice of a public/private partnership, while the fact that the private sector is making a heavy financial commitment without hesitation confirms that big opportunities await on the market. The wide range of applicants from different sectors of the economy in response to the call for tenders is further evidence of the future benefits which the GALILEO system will bring for society as a whole.

During the second phase, known as “competitive negotiation”, it is foreseen that the Joint Undertaking will enter into negotiations with the short listed candidates with a view to awarding the concession. Only the short listed candidates will come into consideration in this phase, in which they will have to comply with set specifications. At the end of the competitive negotiation phase the Joint Undertaking will present a proposal on who should be awarded the concession.

According to the call for concession published in the Official Journal, the concession will go to the short listed candidate which, at the end of the day, offers the best value for money, based mainly on:

- the amount of public aid requested. In particular, account will be taken of the credibility and relevance of the proposals made by the candidate with a view to

maximising the commercial income generated by the use of the GALILEO system;

– the quality of the tender submitted by the candidate with regard to the requirements to establish and manage the space and ground facilities required for the GALILEO system to operate in conformity with the public service requirements imposed, particularly in terms of service guarantee and security. In particular, the bid will have to meet the specific requirements for management of a worldwide service.

3.1.2. Financing of the deployment and operating phases

The results of the call for tenders for the award of the concession show that the private sector is prepared to make a substantial commitment to the Galileo programme. Each of the four tenders received refers to the Council's recommendation that Community funding should not exceed one third of the financing for the deployment phase. It is therefore possible to outline the financing plan for these two phases. Five different resources, identified and described by the consortia bidding for the concession, should contribute to the financing. The establishment of a sixth resource could also be considered.

Firstly, the future concessionaire would receive payment for the sale of the various services generated by the GALILEO system.

Secondly, the future concessionaire also stands to gain from the licences and intellectual property rights for system components.

Thirdly, the European Community, which together with the European Space Agency is providing all of the financing for the development phase, will continue to participate in the financing of the programme beyond the current financial perspective, which expires in 2006. The Council made a specific commitment to this effect in the conclusions it adopted on 26 March 2002. The cost of the deployment phase is put at €2.1 billion. The exact share which the public sector is asked to provide will naturally depend on the amount which the private sector decides to contribute. The Commission has already included the GALILEO programme amongst the programme of projects identified in the European initiative for growth[15] (Quick-start Programme), which has been endorsed by the Council. It is on this basis that the Commission is preparing the future budget allocation for the Galileo programme under the new financial perspective.

Fourthly, the European Investment Bank has said it is willing to grant loans. In this connection, the tenders submitted by the bidding consortia all stress the importance of having long-term loans with a grace period which will allow repayment to start when the system begins to generate significant commercial activity.

Fifthly, some third countries are prepared to contribute financially to the programme (cf. point 2. above). The sums concerned will amount to several hundred million euros, some of which may be invested in the deployment and operating phases.

Sixthly, if it proves necessary to find additional financing, a levy on satellite radionavigation signal receivers could be introduced at the European level to finance the deployment and operating phases. This would constitute an own resource for the future Supervisory Authority,

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15 COM(2003) 690 final of 11 November 2003.

which could transfer a portion of the proceeds to the concessionaire so as to reduce the need for other public funds. The proposal for a regulation establishing the Supervisory Authority (cf. point 3.2.1. below) makes provision for this option. Its implementation will depend on the business and market developments in GNSS receivers and associated services. Before the Commission presents such a proposal, a comprehensive analysis taking into account all economic and market effects on the affected sectors will be performed.

The exact amount to be contributed by the future concessionaire will be discussed at the competitive negotiation phase and will only be known after completion of the selection procedure, some time during 2004. In this respect, the diversity of the services generated by the GALILEO system is without any doubt a factor which will help to maximise the concessionaire's future revenue and, hence, its financial contribution.

3.1.3. Services generated by the GALILEO system

The definition of the services and the frequency plan of the future European system of satellite radionavigation were addressed at length in the communication from the Commission to Parliament and the Council adopted on 24 September 2002. Point 3 of that communication and Annex 1 thereto, in which the services and associated frequencies are specified, serve as reference documents.

The system has been designed to be flexible, as it was defined in the early years of the new millennium to serve for a period of at least twenty five years, starting from 2008. Since it is impossible to foresee all the changes that may take place during such a long period of time, it is essential, owing to technical advances and changes in markets, that the signal generators placed on board the satellites are totally flexible, and this can be achieved by providing capacity for downloading signal modulations rather than using generators which do not permit subsequent modifications to be made. Possible modifications to the signal will not affect the performance of receivers already in service, even though more efficient receivers may be developed. Flexibility guarantees the level of performance which users of the GALILEO system are entitled to expect. It goes without saying that such technical flexibility will be only be applied in conformity with the agreements which have been concluded with partners, in particular the United States, as described in point 2.4.2.

At its meeting of 5-6 December 2002, the Transport Council adopted conclusions according to which the statement of work for the calls for tender to be launched for the Galileo programme included the five services specified in the Commission communication of 24 September 2002. Those bidding for the concession have fully understood and endorsed this approach, which has now been borne out by the results of the latest World Radiocommunication Conference (cf. point 1.3. above), the removal of the last remaining obstacle concerning the governmental signal and the good progress made with regard to the search and rescue service.

3.1.3.1. Removal of the last obstacle concerning the governmental signal

As indicated in point 2 above, an agreement has been reached with the United States concerning the coexistence of the frequencies used by the governmental service signals of the GALILEO system and those used by the GPS system M code signals. This agreement removes any political obstacle to the existence of a governmental service with encrypted signals that are especially resistant to interference.

Moreover, studies have shown the impact of the cost of the governmental service on the design and equipment of the GALILEO system as a whole is almost insignificant as far as the space segment is concerned. The only additional costs generated by the governmental service are those connected with its operational management. However, they will be borne only by Member States which wish to use this service, as its use will be optional and left to the discretion of each Member State within the framework laid down by the future Supervisory Authority (cf. point 3.2.1. below). Any charges which might be levied for the use of the governmental service will be determined by the concession contract.

It should be pointed out that, in the tenders submitted, those bidding for the concession for the system have confirmed that the provision of a governmental service will account for a substantial portion of the revenue of the future operator, in particular by virtue of the user licences. Moreover, the award of the concession for infrastructure will make it possible to obtain the best possible balance between management costs for the governmental service and the revenue it yields.

3.1.3.2. Good progress with regard to the search and rescue service

Work on defining the search and rescue service has been accompanied by technical discussions within Cospas-Sarsat. This international organisation, whose four founder members are the United States, the Russian Federation, France and Canada, offers an operational global search and rescue service. As the European Union has proposed in the case of the GALILEO system, the United States and Russia have each announced that they intend to make their GPS and GLONASS satellite radionavigation systems available to Cospas-Sarsat in order to improve the effectiveness of the search and rescue service.

Whilst it is now accepted that the development and enhancement of the search and rescue service offered by Cospas-Sarsat requires the use of satellite radionavigation, efforts should be made to ensure the compatibility of the technical specifications adopted for this purpose by the Galileo, GPS and GLONASS systems. To this end, a technical cooperation agreement to be concluded in 2004 will define the characteristics of the enhanced service, the expected performances and the sharing of responsibilities between the various partners.

In the longer term, it will be necessary to conclude another agreement, between the Supervisory Authority and the founding members of the Cospas-Sarsat system, on the definition of the service generated by the GALILEO system and the specific conditions for its use.

Feasibility studies are currently being carried out to include in the GALILEO programme the Inmarsat system of research and rescue.

3.2. Framework structure for the system

On 31 July 2003, the Commission forwarded to the Council and the European Parliament a proposal for a regulation on the establishment of structures for the management of the European satellite radionavigation programme[16]. The proposal is currently being considered by the Council and the European Parliament. It is proposed that two structures be set up, namely a Supervisory Authority and a Centre for Security and Safety.

[16] COM(2003) 471 final

3.2.1. Supervisory Authority

The Supervisory Authority's role is to manage public interests relating to the European satellite radionavigation programme and, in particular, to act as the licensing authority for the system. It will sign the concession contract with the concessionaire and will ensure that it is complied with.

The structure is modelled on that of a regulatory agency and external to the Commission. It must beset up as soon as possible because its establishment completes the institutional framework for European satellite radionavigation. It signals the Union's political will to implement the Galileo programme successfully and make it definitive.

Moreover, it is essential that the Supervisory Authority be set up at the same time as the Centre for Security and Safety (cf. point 3.2.2. below). The Supervisory Authority and the Centre for Security and Safety will indeed be closely linked to the definition of the security procedures that apply: to the system for instance, consultation procedures, procedures for modifying or interrupting signals, or procedures for monitoring users of the governmental service, who will be designated by each Member State according to its needs.

There is also an urgent need to establish the body which will be the depositary of the frequencies necessary to ensure the operation of the system and will coordinate Member States' actions in this connection.

It is likewise essential to start up, without delay, the procedures for the certification and type-approval of the system. This is one of the key factors as regards the rapid deployment of services generated by the GALILEO system in sectors such as civil aviation, maritime transport, the railways and construction.

Lastly, as the Supervisory Authority is the licensing authority vis-à-vis the future concessionaire, it must be in place in order to sign the concession contract, and the contract could be signed as early as the end of 2004.

3.2.2. Centre for Security and Safety

The GALILEO system is a sensitive infrastructure in terms of security and safety. It is therefore important to protect its operation against attacks, malicious or otherwise, and to prevent its use for purposes which run counter to the interests of the European Union and its Member States.

Since the start of work on the GALILEO programme, matters connected with the security of the system were the subject of detailed studies by two bodies, namely the GSSB (Galileo System Security Board), informal group of experts whose work was coordinated by the European Commission, and the GSAB (Galileo Security Advisory Board), set up by the European Space Agency. The work done by these two expert groups has proved very useful. It has made it possible to identify the main areas where specific action is needed.

The GSSB and the GSAB were in practice replaced by the Security Board ("GALILEO Security Board" or "GSB"), set up by article 7 of the Regulation N° 876/2002 to deal with security matters regarding the system The GSB will have a short existence, as its lifespan coincides with that of the Joint Undertaking and should therefore end with the development phase, in 2006.

At present, the GSB performs some very useful work, evaluating the needs and drawing up rules on reliability to be applied at the development phase and for the system validation procedures. It has also played a part in shaping the future management structures, in particular the Centre for Security and Safety, the establishment of which is the subject of a Commission proposal. The work done by the GSB has demonstrated the need for a permanent and operational decision-making structure whose principal role is to act as the interface between the public authorities and the concessionaire in the event of a crisis, and which could even take measures involving the scrambling of the service's signals.

It is foreseen that the Centre for Security and Safety will be placed under the direct responsibility of the General Secretary of the Council/High Representative for the Common Security and Foreign Policy.

CONCLUSIONS

Since the last communication on the progress of the GALILEO programme, the advances made both in terms of the development of the system and its applications and in terms of international cooperation have been considerable. The programme is evolving as planned, and its international dimension is asserting itself more and more by the day, e.g. through the forthcoming conclusion of an Agreement with the United States. Its development constitutes a key element in the strategy of the European Union in the field of space, as presented by the Commission in its White Paper on the European Space Policy[17].

Exactly how much of the funding the private sector will declare itself ready to take on represents, in short, the only element of uncertainty remaining, even though the four offers submitted under the procedure for selecting the future concession holder actually provide for the substantial involvement of the undertakings concerned. With a view to obtaining a definite commitment from the private sector to finance two thirds of the deployment and operating phases, as recommended by the Council, it would be desirable if the latter could make an irrevocable commitment of its own in favour of the programme. The determining factors in this respect would appear to be the promotion of the system through the creation of supportive environments, as well as the adoption of a definitive political decision to go ahead with the GALILEO programme until the system enters into service in 2008.

Against this background, it is essential that the legislative procedure regarding the rules on the future structures for managing the programme be achieved without delay, and that the European Parliament and the Council confirm the guidelines which they have previously issued – particularly with regard to the services which will be generated by the GALILEO system, so as to enable the European Space Agency to draw up once and for all the technical options adopted to date and to enable the Joint Undertaking to conduct negotiations aimed at selecting the system operator and the Supervisory Authority to conclude the concession contract.

[17] COM(2003)673 final