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ANNEX

Work Programme 2008

**for the further implementation of the European satellite radio-navigation programmes
(EGNOS and Galileo), including the Programme Implementation Plan**

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1. INTRODUCTION

This document covers all activities to be launched in 2008 to implement the European satellite radio-navigation programmes EGNOS and Galileo. Its legal base is the Regulation on the further implementation of the European satellite radio navigation programmes (EGNOS and Galileo)¹ (referred to hereafter as the "GNSS Regulation").

In accordance with Article 15 of the GNSS Regulation, the present document represents the GNSS work programme to be adopted by the European Commission following the committee management procedure defined in Article 4 of Decision 1999/468/EC, and reviewed on an annual basis.

The document covers

- the activities relating to the completion of the development and validation phase of the Galileo programme, including the transition between In-Orbit Validation (IOV) and Full Operational Capability (FOC)
- the activities relating to the deployment phase of the Galileo programme
- and the activities relating to the operation of EGNOS, including the operational maintenance, as well as actions preceding or in preparation for the exploitation phase of the programmes.²

It is structured in two major sections:

- Chapter 3 Context describes the measures that need to be implemented in 2008 but have no significant financial implications;
- Chapter 4 Work Programme lists those activities that require the allocation of commitment and payment credits in 2008.

2. STATUS OF THE PROGRAMMES

The annual revision of the work programme will include updates on the implementation of EGNOS and Galileo (hereinafter referred to as the GNSS programmes). In this first version of the work programme and while awaiting the launch of the first specific actions under the GNSS Regulation in the course of 2008, reference is made to the status descriptions provided by the

¹ Regulation No. 683/2008 of the European Parliament and the Council, OJ L 196, 24.07.2008, p.1
² Note that this document does not cover activities financed under the Framework Programme for Research and Development or the relevant budget lines financing the in-orbit validation phase or GSA's operational budget.

Commission 2007 Communication on the implementation of the European GNSS programmes.³

3. CONTEXT

This chapter details the measures that have no significant budgetary implications but which are planned to be carried out in 2008 to implement the GNSS Regulation. These measures are for information, in order to provide the broader context within which the foreseen commitment and payment appropriations for 2008, as described in chapter 4, will take place.

3.1. Governance

This heading includes the measures being proposed to ensure the good governance of the GNSS programmes.

3.1.1. European Commission

Article 12 of the GNSS Regulation confers on the Commission the responsibility for the management of the GNSS programmes. Unless otherwise stated, the Commission services⁴ will carry out the actions listed in chapter 4 below. Furthermore, the Commission will carry out tasks related to mission and system definitions, to system implementation and to project management of EGNOS and Galileo. This includes ensuring the management of the Mission Requirements Document and its evolution, as well as activities in the field of standardisation.

3.1.2. Galileo Inter-institutional Panel

The Galileo inter-institutional panel (GIP) will facilitate a close cooperation between the European Parliament, the Council and the European Commission and allow the three institutions to follow closely GNSS implementation, international agreements with third countries, the preparation of satellite navigation markets, the effectiveness of the governance arrangements and the annual review of the work programme.

The Commission will prepare the meetings of the Panel. Methods for protecting commercially confidential and sensitive data in this context will be established.

3.1.3. European GNSS Programmes Committee

In accordance with the GNSS Regulation and with the European Community comitology procedure, the European GNSS Programmes Committee (referred to hereafter as the "GNSS Committee") has been created and has adopted its rules of procedure. The GNSS Committee shall assist the Commission in the

³ Galileo at a Cross-Road: The Implementation of the European GNSS Programmes, Commission Communication of 16 May 2007, COM(2007)261

⁴ Wherever the Commission or its services are mentioned in this document this includes the support of the GSA where relevant.

management of the GNSS programmes. The GNSS Committee must allow Member States to satisfy themselves that the entire Programme is managed appropriately, in particular through reviews of progress by the independent experts referred to in paragraph 3.2 of the Strategic Framework against the key decision points, as provided for by the GNSS Regulation. In addition, Member States experts will be able to participate in the main technical reviews of the programme, at the invitation of the Commission.

On matters pertaining to the interoperability of the systems and to the Strategic Framework the committee procedures also involve the European Parliament.

ESA, the GSA and third countries with whom such agreements have been concluded will be invited to nominate observers to the GNSS Committee.

3.1.4. GNSS Security Board

The Commission will adopt appropriate measures in matters related to the security of the GNSS systems, taking full account of expert advice provided through the GNSS Security Board and thus responding to the requirements of Article 13 of the GNSS Regulation.

The Commission will establish the GNSS Security Board and ask Member States and countries with whom the necessary agreements have been concluded, as well as relevant organisations to nominate their representatives. A gradual transition will start with the goal of phasing out the current Galileo Security Board once its activities have been duly completed or transferred.

3.1.5. ESA

While the Commission is responsible for the management of the GNSS programmes, the European Space Agency (ESA) will continue to play an important role in the Galileo full operational capability implementation and in the EGNOS operations as design authority until 2013.

To ensure the strict division of responsibilities between the two parties, the Commission will conclude a multi-annual delegation agreement with ESA in 2008, covering the delegated tasks and budget implementation relating to the achievement of Galileo full operational capability. This will lay down conditions for the management of the funds entrusted to ESA, and in particular the actions to be implemented, the relevant financing, management procedures and monitoring and inspection measures, measures applicable in the event of inadequate performance of contracts, as well as rules regarding the ownership of tangible and intangible property. The Commission will adopt the delegation decision, in accordance with Article 18 of the GNSS Regulation and the applicable comitology procedures.

The delegation agreement between the European Commission and ESA for the implementation of the Space Component of Global Monitoring for Environment and Security (GMES) was finalised beginning 2008. The Commission will

ensure that lessons learned from this exercise will be taken into consideration through internal coordination.

The Commission will conclude a separate agreement with ESA for its role as design agent during the operations of EGNOS till 2013, which will include implementation and qualification of a set of agreed design changes and a set of obsolescence management activities.

3.1.6. GSA

In 2008, the European GNSS Supervisory Authority (GSA) will, on the basis of guidelines issued by the Commission, start various definition tasks of security accreditation and the Galileo Security Monitoring Centre, contribute to the preparation of commercialisation of the systems and undertake other tasks that the Commission may decide on, including the promotion of GNSS applications and training centres.

To ensure the strict division of responsibilities between the different parties, the Commission will propose a revision of Regulation 1321/2004 on the establishment of structures for the management of the European satellite radio-navigation programmes⁵, aligning this with the GNSS Regulation, notably Article 16.

The GSA will continue engaging in research and development activities, including managing R&D activities launched under the 6th Framework Programme and defining and initiating activities and projects relevant to its tasks under the 7th Framework Programme, following a Commission delegation. These projects are described in the respective R&D work programmes and are not included in the GNSS Work Programme.

3.2. Security, legal measures, and international cooperation

3.2.1. Security framework

3.2.1.1. Technical security requirements

In accordance with Article 13(2) of the GNSS Regulation, applicable comitology procedures and after consulting the GNSS Security Board and Committee, the European Commission will adopt the main technical security requirements for the GNSS systems in 2008. The Commission will update the detailed technical requirements accordingly. The GSA will contribute to this work, particularly where the security accreditation and the Galileo Security Monitoring Centre are concerned, and also to certain aspects of PRS and export control policy.

⁵ Council Regulation (EC) No 1321/2004 of 12 July 2004 on the establishment of structures for the management of the European satellite radio-navigation programmes, OJ L 246, 20/07/2004

3.2.1.2. PRS Access policy

The public regulated services (PRS) offered by Galileo will be restricted to government-authorised users. Coordination of the various stakeholders needs to be ensured at EU level and at national level. To this purpose, support activities for the preparation, adoption and evolution of the PRS Access Policy will be launched in 2008. These actions include preparation of guidelines for the implementation of PRS and the development of specifications and manufacturing instructions for PRS receivers. First steps to define a concept of operations will be undertaken by the Commission services in interaction with the EU Member States, in order to prepare a Commission proposal regarding the utilisation of PRS.

3.2.1.3. Security accreditation

Under guidance of the Commission, the GSA will prepare the security accreditation of the Galileo IOV configuration, defining specifications and taking the first steps in monitoring and implementation of existing specifications. In the same domain, work will be undertaken by the Commission to update the Galileo system security-related specifications (SSRS) and system interconnection security-related specifications (SISRS) to be used in the FOC phase.

3.2.1.4. Security Monitoring Centre

The definition and planning of the Security Monitoring Centre to be operated by the GSA will continue in 2008. Development, validation and procurement of the Centre's equipment will be part of the Galileo FOC procurement, while hosting arrangements and operations of the centre will be covered by of by the GSA.

3.2.1.5. Export controls

The Commission will pursue work to prepare the ground for export control measures related to security technologies in the GNSS programmes within the context of the Community export control policy, where possible building on the work of existing export control regimes. This will be an element in the preparation of a roadmap towards a Galileo technology control regime. The Commission may request support of the GSA in this context.

3.2.2. *Legal framework*

3.2.2.1. EGNOS Agreements

The GNSS Regulation transfers ownership of tangible and intangible assets created or developed under the EGNOS and Galileo programmes to the European Community.

To this purpose, the Commission will conclude contractual arrangements with ESA, with the EGNOS operator and infrastructure group (EOIG) and relevant bodies. It will also sign the contract for EGNOS operations for the period 2009 –

2013 with the identified EGNOS service provider, covering also the applicable liability regimes.

Finally, the Commission services will prepare a master plan with the objective that it is presented in early 2009 that will define goals, objectives, terms and conditions for the future EGNOS operations, maintenance, mission and infrastructure evolution, certification and exploitation.

3.2.2.2. European Radio-Navigation Plan

In 2008, the European Commission will start preparing a European Radio-Navigation Plan, in order to optimise the various navigation infrastructures and services throughout Europe in a coherent frame. This document will present the policy of the European Union and its plans for a stable and robust radio-navigation environment in the European Union, allowing seamless and interoperable services to support security, transport, environment and economic policies in conformity with the EU laws.

3.2.3. *International cooperation*

International activities focus on reducing political, technical and security risks to the European GNSS programmes, protecting Galileo frequencies and services and on promoting the uptake of Galileo and EGNOS services worldwide. In 2008, the Commission will revise the international cooperation strategy on the whole in light of the new governance and existing commitments, taking into account the deployment of new GNSS systems across the world.

Bi-lateral cooperation will focus on formalising relations mainly through bilateral agreements with non-EU ESA member countries and on developing cooperation with other GNSS providers (United States, China, Russian Federation, Japan, India) as a priority. This will also include certain technical work to support mainly the compatibility and security objectives of Galileo and EGNOS vis-à-vis third country systems.

4. **WORK PROGRAMME**

The elements described in this chapter may result in commitment and/or payment appropriations related to the execution of the related implementation tasks.

4.1. **Further implementation of Galileo**

The Galileo Programme development and validation phase is due to be concluded with in-orbit validation (IOV) in 2010. In parallel, the deployment phase will commence, foreseen to lead to the achievement of full operational capability in 2013, as described in the Outcome of Proceedings of the Council of the European Union held in November and December 2007. This chapter details the actions taken in 2008 towards that goal.

4.1.1. *Development and validation phase*

The development phase is under way and foresees the manufacturing, testing, launching and validation of two experimental and four operational satellites and the associated ground mission and ground control segments. It will allow in-orbit validation and commissioning of the deployed assets.

In accordance with the GNSS Regulation, ownership of tangible and intangible assets created or developed under the Galileo programme will be transferred to the European Communities.

As part of this phase, the second experimental satellite, Giove-B, was launched from Baikonur on 27 April 2008.

4.1.2. *Deployment phase*

In parallel with the development phase, ESA will be authorised to launch the procurement of the Galileo full operational capability (FOC) in the name and on behalf of the Commission. Such procurement shall build on the assets being put in place for IOV, completing the satellite constellation and the associated ground segments and extending the system activities and operation in order to achieve the validation of full operational capability for the different Galileo services (Open Service, Commercial Service, Safety of Life Service, Search and Rescue Service and Public Regulated Service), in compliance with the Mission Requirement Document.

The Galileo FOC procurement pursues the objectives stated in the GNSS Regulation.

Procurement will be governed by Community procurement rules and structured in six main work packages as well as a number of additional work packages, as further described in Annex 1 and 2 and implemented through a delegation agreement signed between the Commission and ESA, in accordance Article 18 of the GNSS Regulation (see chapter 3.1.5).

4.1.2.1. System engineering support

A mixed industrial team will support all system design choices and decisions. It will help ESA make appropriate design choices and decisions along the implementation process, up to and including system specifications, performance analysis, testing, verification and validation of all elements of the infrastructure.

Such services will be the object of a specific work package to be procured by ESA in accordance with the provisions of the delegation agreement referred to in the preceding chapter.

4.1.2.2. Ground mission infrastructure completion

The ground mission elements responsible for the provision of the navigation signals and messages put in place during the development and validation phase

will be upgraded and additional facilities deployed, in order to achieve full operational capability status.

The components and services required to complete the ground mission infrastructure will be the object of a specific work package to be procured by ESA in accordance with the provisions of the delegation agreement referred to in chapter 4.1.2 above.

4.1.2.3. Ground control infrastructure completion

The ground control elements responsible for the control of the individual satellites put in place during the development and validation phase will be upgraded and additional facilities deployed, in order to achieve full operational capability status.

The components and services required to complete the ground control infrastructure will be the object of a specific work package to be procured by ESA in accordance with the provisions of the delegation agreement referred to in chapter 4.1.2 above.

4.1.2.4. Satellites

In addition to the four satellites deployed during development and validation phase, a total of 26 satellites in orbit plus an appropriate number of spares will be procured in order to establish the full operational capability of the space segment.

Furthermore, specific arrangement will be put in place to allow the purchase of a number of so-called long-lead items in order to safeguard timely delivery of the satellites in later phases of the deployment phase.

The satellites and long-lead items required for their construction will be the object of a specific work package to be procured by ESA in accordance with the provisions of the delegation agreement referred to in chapter 4.1.2 above.

4.1.2.5. Launch services

The satellite launch services will be the object of a specific work package to be procured by ESA in accordance with the provisions of the delegation agreement referred to in chapter 4.1.2 above.

4.1.2.6. Operations

Operations activities will be contracted to an operator who will coordinate the entire Galileo operations in order to ensure a successful navigation mission. The concept of operations for the Galileo system is based on two Galileo Satellite Control Centres (Ground Control Segment [GCS] and Ground Mission Segment [GMS]) in Fucino and Oberpfaffenhofen and a Safety-of-Life Centre in Madrid, operated on a 24/7 basis, responsible for Safety-of-Life multimodal services and applications. The Safety-of-Life Centre in Madrid will be upgraded during the period 2008-2013 with the aim of qualifying it as a full, third Galileo Satellite

Control Centre by 2013, subject to it meeting all the necessary requirements applicable to all centres⁶. This will not affect the operational capabilities of Oberpfaffenhofen and Fucino.

The services required for the Galileo operations will be the object of a specific work package to be procured by ESA in accordance with the provisions of the delegation agreement referred to in chapter 4.1.2 above.

4.1.2.7. Other activities related to the achievement of FOC

In addition to the above-mentioned work packages, further procurement measures are required to achieve full operational capability of Galileo, including ancillary services (time service, geodesy, search and rescue interfaces, etc.), tools (for example test receivers) and remaining infrastructure elements (e.g. Security Monitoring Centre).

4.1.2.8. System and Procurement Agent Management

The European Space Agency will act as system prime and procurement agent for the European Commission.

A delegation agreement signed by the two parties in 2008 (see chapter 3.1.5) will detail the tasks to be entrusted to ESA, including in system management and procurement, as well as the associated budget. The principles of procurement are described in Annex 1 to this document.

4.2. Further implementation of EGNOS

4.2.1. *Achieving full operational capability*

Construction of the EGNOS system began in the mid 1990s and is nearing completion. The operational qualification and final acceptance review is planned for March 2009. The objective regarding EGNOS is to ensure a transition from its deployment phase into an operational stage which includes, inter alia, both compliance with ICAO performance requirements and the setting up of certified operator in accordance with the Single European Sky Regulation for what concerns use by the aviation sector and compliance with relevant requirements of other sectors.

In 2008, the activities related to EGNOS covered by this work programme address the operations and exploitation of the system. This implies actions and/or contractual arrangements concerning infrastructure management (ground and space segments), system operations and maintenance, geostationary transponder replacement, system upgrades and system evolution, obsolescence

⁶ The Spanish authorities have informed the Commission that the decision has been taken to evolve the SoL Centre to a Satellite Control Centre. The Commission will ensure that the Centre is included in the procurement of Galileo FOC, and specific bilateral agreements will be made to ensure that this evolution will be without additional costs to the agreed Community budget for the European GNSS programmes for the period 2008-2013.

management, system/operator certification⁷ and standardisation, overall EGNOS marketing, the integration of EGNOS into Galileo and third party liability.

The Commission will, with the assistance of the GSA, negotiate and conclude the contract for EGNOS operations for the period 2009 – 2013 with the identified EGNOS service provider, as well as contracts with relevant providers as and where required.

Refer also to chapter 3.2.2.1.

4.3. Preparation for the post-2013 exploitation of Galileo and EGNOS

A number of steps will have to be taken prior to exploitation to prepare for the post-2013 operations of Galileo and EGNOS. This includes the assessment of their technical evolution in line with emerging user requirements, as well as the consideration of future arrangements for the continued exploitation of Galileo and EGNOS.

4.3.1. Exploitation

Public private partnerships or other forms of contracts with the private sector or any other forms of governance will need to be concluded for the operation and replenishment of the systems and the service provision after 2013.

In 2008-2009, the Commission will contract and undertake studies to assess the advantages and disadvantages of the use of service concession contracts or public service contracts with the private sector or under any other form of governance.

4.3.2. Technological evolution

To ensure the long-term sustainability of the GNSS programmes, the Commission services will propose an innovation policy aiming for, inter alia, an overall coherent approach of the EU research framework activities, the Evolution Programme of the European Space Agency and other, national initiatives.

4.4. Application and service development

4.4.1. Action Plan for the development of applications and services

In 2006, the Commission launched a Green Paper on satellite navigation applications. This will be followed up with an Action Plan for the development of applications and services based on EGNOS and Galileo, with a release target of early 2009.

⁷ Including in accordance with Single European Sky Regulations

4.5. International cooperation

The Commission will launch in 2008 limited technical and research activities aimed at supporting Galileo/EGNOS objectives in terms of compatibility, interoperability, application research and international outreach in the international relations. In some cases they may involve participation or co-funding by third country entities or international organisations (e.g. UN).

4.6. Supporting measures⁸

4.6.1. Programme and project support

The Commission manages the EGNOS and Galileo programmes and must ensure overall control of costs and schedule so that the space and ground-based infrastructures as well as related operations are in place and in a certifiable state by 2009 for EGNOS and 2013 for Galileo. To this extent, it will ensure that its internal programme and project management structures are efficient and effective and that it possesses the resources needed to accomplish this task.

4.6.1.1. Independent project management experts

Independent project management experts will be asked to review the implementation of the GNSS programmes and make appropriate recommendations, in particular with regard to risk management.

An invitation to tender will be issued by the Commission in the course of 2008 in order to nominate the independent project management experts.

4.6.2. Risk mitigation

4.6.2.1. Risk management

The risks associated with the implementation of EGNOS and Galileo need to be identified and managed. Mitigating actions should reduce the potential impact of risks in case they materialise.

In 2008, the Commission services will establish and implement a risk management plan, covering the programmes at all levels. Entities becoming part of the GNSS effort will be required to comply with the risk management plan.

Furthermore, the necessary supporting tools for the implementation of risk management, including information systems and the services to adapt these to the project organisations, will be procured and made available where necessary in the organisation of the programmes implementation.

⁸ Measures to be financed on the budget line for administrative expenditures of the GNSS Regulation, i.e. 06 01 04 12.

4.6.2.2. Key decision points

Key decision points are milestones in the implementation of the GNSS programmes that permit an assessment of whether functional, financial or scheduling targets are met and which offer opportunities for corrective action to be taken where relevant.

In accordance with Article 12(3) of the GNSS Regulation, the applicable comitology procedures and after having consulted the independent expert advisors, the Commission will adopt in 2008 key decision points for the implementation of the GNSS programmes.

4.6.3. *Other support services*

4.6.3.1. Conferences

The Commission may organise or contribute to the organisation of conference on subjects related to radio-navigation services.

4.6.4. *Information dissemination*

The Commission may launch activities to promote or inform of the GNSS programmes and their objectives.

5. COSTS, STAFFING AND FINANCING

5.1. Costs

The table below indicates the estimated total costs for the further implementation of Galileo and EGNOS, including the measures covered by this work programme.⁹ Estimates for Galileo FOC were established before the launch of procurement and will need to be reviewed before contracts are signed.

Item	Estimated costs in millions	of which 2008
Galileo		
Full operational capability, including contingencies	3049	602
EGNOS		
Exploitation and operations (2008-2013), including contingencies	330	287
Support to the Commission¹⁰		

⁹ The table does not include the GSA administrative budget .

¹⁰ Measures to be financed on the budget line for administrative expenditures of the GNSS Regulation, i.e. 06 01 04 12.

Project management support and advisory services	26	1
Grand Total	3,405	890^{*)}

The total amount intended to be delegated to the European Space Agency under 2008 appropriations is EUR 602 million. This amount will go towards the financing of the activities related to the further implementation of Galileo (see chapter 4.1).

The total amount intended for EGNOS is EUR 287 million. This amount will go towards the costs of operations (see chapter 4.2).

The amount foreseen for the Commission's project management support and advisory services is EUR 1 million.

5.2. Staffing

The Commission will undertake measures to make sure that it possesses the resources needed to ensure the management of the GNSS programmes, in line with Article 12(3) of the GNSS Regulation. In this respect, it will make optimal use of the expertise of the GSA.

5.3. Financing

The financial envelope foreseen under the GNSS Regulation is EUR 3405 million at current prices for the period 2007-2013. This amount covers activities relating to the completion of the development and validation phase of the Galileo programme, to the deployment phase of the Galileo programme, activities related to the operation of EGNOS as well as actions preceding or preparatory to the exploitation phase of the programmes. The above amount includes EUR 400 million made available from the 7th research and development framework programme.

The contracts to be signed for the procurement of the Galileo infrastructure will contain a standard clause giving the Commission the right to terminate the said contracts at any given moment, particularly in case of unavailability of future budgetary resources.

The following table gives an indicative schedule of the annual commitment appropriations of the GNSS budgetary line:

	2008	2009	2010	2011	2012	2013	Total
Commitment appropriations	890 ^{*)}	830 ^{**)}	915 ^{**)}	196 ^{**)}	172 ^{**)}	2 ^{**)}	3 005,000

^{*)} This amount will be increased by additional credits coming from surpluses of 20 million euros under Chapter 0602 of the budget. Such a transfer will, however, be without effect on the overall budgetary allocation foreseen by the GNSS Regulation.

^{**) Estimated annual commitment appropriations.}

In addition to the above amount, EUR 400 million will be made available under the 7th framework programme for research and development (budget article 06 06 02) for the period 2008-2013.

5.4. Tendering

The totality of credits for 2008 indicated in chapter 5.3 above will be tendered. The procurement procedures and their indicative timeframes for launching are as follows:

Galileo FOC:	July 2008
EGNOS transponder replacement:	August 2008
EGNOS operational services:	August 2008
Independent project management experts:	June 2008

The Galileo FOC procurement is for services and goods required to implement Galileo's full operational capabilities, the EGNOS transponder tender will be for the replacement of transponders used by EGNOS while the tender for project management experts is for the procurement of consultancy services in project management.

5.5. Reserve

The global amount of EUR 3405 million includes a contingency reserve of EUR 428 million

Annex 1

Procurement principles for the Galileo full operational capability (FOC)

The FOC procurement process and activities will be carried out by ESA according to terms and conditions set forth in a multi-annual delegation agreement concluded between the European Space Agency (ESA) and Commission in 2008.

Such delegation agreement will reflect the following main principles:

1. The Commission's public procurement rules as provided in the EC financial regulation and relevant implementing rules shall apply. The procurement procedure which ESA shall apply to the Galileo FOC procurement is the competitive dialogue referred to in article 91 of the Financial Regulation and article 125b of the Implementing Rules of the Financial Regulation.
2. The Commission will be the contracting authority and will be directly vested with the ownership of all the tangible and intangible assets procured during the FOC.
3. The European Space Agency will be delegated to implement the procurement process including evaluation of offers, negotiations, award and conclusion of contracts and relevant management and budget implementation.
4. The structure of the FOC procurement shall be as follows:
 - split of the procurement of the infrastructure into a set of six main work packages (see table in Annex 2) as well as a number of additional work packages¹¹, through a comprehensive overall procurement break-down; this does not rule out the prospect of multiple simultaneous procurement strands for individual work packages, including of satellites;
 - competitive tendering of all packages and, for the six main work packages, the use of a single procedure whereby any one independent legal entity, or a group represented for this purpose by a legal entity part of a group, may bid for the role of prime contractor for a maximum of two of the six main work packages;
 - at least 40% of the aggregated value of the activities to be subcontracted by competitive tendering at various levels to companies other than those belonging to the groups of which entities will be prime contractors of any of the main work packages;
 - dual sourcing wherever appropriate in order to ensure better overall control of programme, cost and schedule;

¹¹ Test user receivers, infrastructure supply elements, performances measurements, service contracts, etc.

In addition, during procurement the following objectives will be pursued:

1. promoting a balanced participation of industry at all levels, including in particular SME, across the Member States;
2. avoiding possible abuse of dominance or long-term dependency on single suppliers;
3. taking advantage of prior public sector investments and lessons learned as well as industrial experience and competences, including that acquired in the definition and development phases of the European GNSS programmes, while ensuring that competitive tendering shall not be prejudiced.

The European Commission will ensure the implementation of an integrated programme risk management at all levels as well as structural measures to identify, control, mitigate and monitor risks.

Annex 2

Procurement structure for Galileo FOC

Main Work Packages contracted by ESA*	Description
<i>Systems Work Package</i>	
1. System Engineering support	A contract is placed with a mixed industrial team to support all system design choices and decisions. This industrial team supports ESA all along the implementation process, up to and including system specifications, performance analysing, testing, verification and validation of all elements of the infrastructure.
<i>Supply Work Packages</i>	
2. Ground mission infrastructure completion	The completion of the ground mission elements (provision of the navigation signals and messages) by means of an upgrade of the development infrastructure and deployment of the additional facilities up to a full operational capability status.
3. Ground Control infrastructure completion	The completion of the ground control elements (control of the individual satellites) by means of an upgrade of the development infrastructure and deployment of the additional facilities up to a full operational capability status.
4. A total of 26 Satellites: a. Satellites A b. Satellites B c. Satellites C	An initial batch of 10-12 satellites. A second batch of 6-8 satellites, based on demonstrated performance in the delivery of Batch A A third batch of 6-8 satellites, based on demonstrated performance in the delivery of Batch B
5. Launchers	A contract for launch services with reliance on two or, if possible, more technically independent families of launchers.
<i>Operations Work Package</i>	
6. Operations	<p>Operations activities are contracted to an operator. The operator coordinates the entire Galileo operations in order to ensure a successful navigation mission. The concept of operations for the Galileo system is based on two Galileo Satellite Control Centres (GCS/GMS) in Fucino and Oberpfaffenhofen; and a Safety-of-Life Centre in Madrid operated on a 24/7 basis responsible for Safety-of-Life multimodal services and applications. The Safety-of-Life Centre will include both the necessary modules to guarantee the proper levels of integrity, continuity and availability of the system based on a GMS in cold back-up mode and a GCS with identical physical configuration and equivalent functional attributes to the other GCS. Through the centres, the operator is tasked to achieve the mission performances, to control the operational status and ensure the maintenance of the complete ground infrastructure and associated communication network, and to manage its maintenance.</p> <p>The Commission takes note that the Safety-of-Life Centre may decide to evolve to a fully qualified, equivalent Galileo Satellite Control Centre, the assets of which will be owned by the Community. The investment of this evolution will be without additional costs to the agreed Community budget for the European GNSS programmes for the period 2007-2013. Whilst not affecting the operational capabilities of Oberpfaffenhofen and Fucino, the Commission in that case will ensure that this Centre will be fully operationally qualified as a Galileo Satellite Control Centre by the end of 2013, subject that it is able to meet all the necessary requirements applicable to all centres and will be included in the Galileo network of the three centres mentioned above.</p>

* If performance in the delivery of the work packages, or the batches therein, is not satisfactory appropriate adjustments may be implemented, where possible, including competitive tendering of remaining work.

Additional Work Packages contracted by ESA	Description
Test receivers	Multiple-source contracts for test receiver manufacturing.
Service contracts	Contracts with the various service providers and centres for proper functioning of the overall system architecture, such as Time Service Provider, Geodesy Service Provider, Search and Rescue interfaces.

Infrastructure supply elements	Infrastructure elements that are provided independent of the above service contracts, such as the Galileo Security Monitoring Centre to be operated by the GSA.
Additional Work package contracted by the Commission	Description
Performance Measurements	A contract for independent measurement of Key Performance Indicators