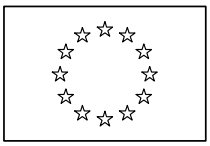

COMMISSION OF THE EUROPEAN COMMUNITIES

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ANNEX

Strategic Framework for the GNSS

for the European satellite radio-navigation programmes (EGNOS and Galileo) and related activities

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1. INTRODUCTION

1.1. Purpose of this document

This strategic framework describes the main actions, estimated budget and related timetable needed to define, develop, validate, construct, operate and later renew and improve the two European global satellite navigation systems, namely Galileo and EGNOS. It specifically addresses Article 15(2) of the Regulation on the further implementation of the European satellite radio navigation programmes (EGNOS and Galileo)[1].

The document also contains activities related to the implementation of Galileo and EGNOS which are provided for information on the broader context.

The areas for action outlined in this document set the context for the GNSS work programme, reviewed annually.

2. THE EUROPEAN GNSS SYSTEMS – EUROPE'S CONTRIBUTION TO A GLOBAL NAVIGATION SATELLITE INFRASTRUCTURE

Global Navigation Satellite Systems (GNSS) are rapidly developing into critical infrastructures for modern society which will rely on it for vital functions such as border controls, transport logistics, financial operations, and surveillance of energy and communications infrastructures. The aim of the European satellite radio-navigation policy is to provide consumers, economic actors and regulators in the European Union and beyond with the GNSS capabilities they require.

The Galileo programme aims at the establishment of the first global satellite radio-navigation and positioning infrastructure specifically designed for civilian purposes. The system established under the Galileo programme will be completely independent of other existing or potential systems, creating thereby an autonomous GNSS.

Signals in space stemming from the Galileo infrastructure, will be used to offer new classes of worldwide services:

– an open service (OS), which is free to the user and provides positioning and synchronisation information intended for high-volume satellite radio-navigation applications;

– a safety of life service (SoL) aimed at users for whom safety is essential. This service also fulfils the requirements of certain application domains for continuity, availability and accuracy and includes an integrity message alerting the user to any failure in the system;

– a commercial service (CS) for the development of applications for professional or commercial use due to improved performance and data with greater added value than those obtained through the open service;

[1] Regulation No. 683/2008 of the European Parliament and of the Council on the further implementation of the European satellite navigation programmes (EGNOS and Galileo), OJ L 196, 24.7.2008

– a public regulated service (PRS) restricted to government-authorised users, for sensitive applications which require a high level of service continuity. The public regulated service uses encrypted signals.

– In addition, Galileo will participate in the search and rescue support service (SAR) of the COSPAS-SARSAT system by detecting emergency signals emitted by beacons and relaying messages to them.

Galileo has become a flagship project for both its strategic value and its important contribution to the Lisbon strategy, incarnating the political, economic, and technological dimensions of the European Union. This has been emphasised on several occasions by the European Council at their Summits in Cologne, Feira, Nice, Stockholm, Laeken, Barcelona, and Brussels.

In May 2007, the Fourth Space Council adopted a Council Resolution which welcomes and supports the European Space Policy (ESP), as outlined in the Commission Communication of April 2007. The Galileo and EGNOS programmes are the European cornerstones of this policy.

The EGNOS (European Geostationary Navigation Overlay Service) system is an infrastructure that monitors and corrects signals emitted by existing global satellite navigation systems. It comprises earth stations and several transponders installed on geostationary satellites. The aim of the EGNOS programme is to improve the quality of signals from existing global satellite navigation systems, as described in the Mission Requirements Document.

The specific objectives the EGNOS programme are to ensure that the system fulfils the following three functions:

– an open service, which is free to the user and provides positioning and synchronisation information intended for high-volume satellite radio navigation applications in the area covered by the system;

– a service for the dissemination of commercial data to assist the development of applications for professional or commercial use by means of improved performance and data with greater added value than those obtained through the open service;

– a safety of life service (SoL) aimed at users for whom safety is essential. In particular, the latter service fulfils the requirements of certain application domains for continuity, availability and accuracy and includes an integrity message alerting the user of any failure in the system over the coverage area.

3. STRATEGIC FRAMEWORK FOR IMPLEMENTATION

3.1. Introduction

This document outlines the actions that the European Commission, as Programme Manager, will implement for the deployment and exploitation of the European Global Navigation Satellite System infrastructures in the period 2008-2013 and to take preparatory steps for its commercial exploitation thereafter. They include measures to ensure the good governance of the programmes, measures to achieve full operational capability of Galileo, measures to put in place operations for EGNOS, measures to support applications using the services offered by the two systems and finally supporting measures required to fully implement the two programmes.

3.2. Governance

In accordance with the GNSS Regulation, a range of actors are involved in the further implementation of EGNOS and Galileo.

– The European Parliament and Council are the ultimate political decision-making bodies for the programmes, in particular for the overall programme objectives and definition of services that will be provided by EGNOS and Galileo, for the procurement principles and for the decisions on the subsequent phases of the programmes.

– The European Commission is responsible for the management of the programmes including for the funds allocated to the programmes. To this purpose it will name a programme manager who will have technical responsibility for the implementation of Galileo and EGNOS[2]. Unless otherwise stated, the Commission services[3] will carry out the actions listed in the chapters below. In addition to these, the Commission will carry out tasks related to mission and system definitions, to system implementation and to project management of EGNOS and Galileo, in accordance with the High-Level Mission Document.

– The European GNSS Supervisory Authority (GSA) will carry out tasks related to the programmes' security, contribute to the preparation of commercialisation and carry out other tasks entrusted to it by the Commission. It will carry out these tasks in accordance with guidelines issued by the Commission.

– The European Space Agency (ESA) will in the name and on behalf of the European Community carry out tasks and manage budget relating to the implementation of the Galileo programme, in particular its deployment phase. It will act as procurement agent and also overall prime, therefore having the responsibility to integrate all the segments with support form the system segment work package. Furthermore, it will also act as design authority for the two GNSS programme during operational phase. ESA will exercise its responsibilities on the basis of a delegation agreement.

In order to ensure that governance is effective and based on a strict division of responsibilities, it will be based on the following structure:

– the Galileo inter-institutional panel (GIP), composed of three representatives each from the European Parliament and the Council and one from the European Commission, allows 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 European GNSS Programmes Committee (or GNSS Committee), composed of Member State representatives and open to observers from GSA and ESA as well as from third countries and international organisations assists the Commission in

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[2] Effective management and monitoring of the programme
- may involve reinforcing the Commission's staff with external professionals through a support contract and with detached national experts;
- should involve calling upon an external contractor to perform independent checks and regularly challenge the programme management teams in the Commission and ESA;

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

the management of the GNSS programmes. On matters pertaining to the interoperability of the systems and to the Strategic Framework the approval procedures will also involve the European Parliament;

– the GNSS Security Board consisting of security experts will help the Commission adopt appropriate measures in matters related to the security of the GNSS systems and thus respond to the requirements of Article 13(3) of the GNSS Regulation,

– a GNSS inter-service group of representatives from the Directorates-General most concerned by EGNOS and Galileo will help ensure internal coordination between the various Commission departments,

– a delegation agreement between the Commission and ESA formalises tasks and budget implementation entrusted to ESA and relating to the achievement of full operational capability of Galileo,

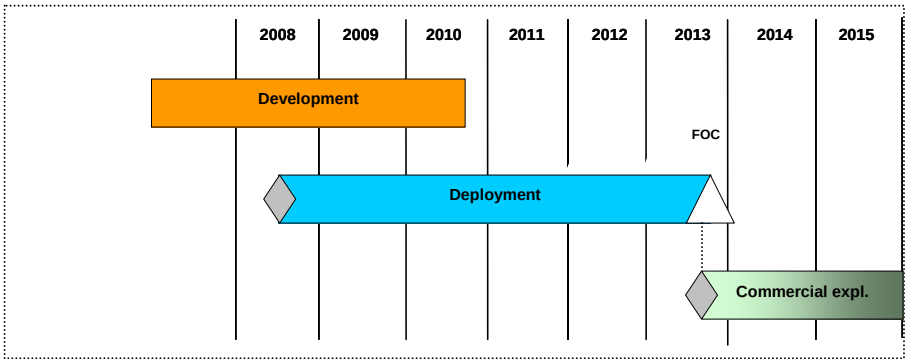
– guidelines will be issued to the GSA setting out the tasks of the latter and, where necessary, delegation agreements may be provided in cases of budget implementation tasks,

– a dedicated programme management organisation within Directorate-General Energy and Transport.

3.3. Galileo – from development to deployment

3.3.1. Phases of implementation

The Galileo programme consists of a definition phase, a development and validation phase, a deployment phase and an exploitation phase. While the development and validation phase has entered in-orbit validation and is expected to end on 2010, the deployment phase should begin in 2008 and end in 2013 with the establishment of the system's full operational capabilities, as defined in the Outcome of Proceedings of the Council of the European Union held in November and December 2007. Preparatory steps for the commercial exploitation of Galileo should commence in 2010 with the aim to enable full commercial operations as from FOC readiness.



Notes

FOC: Full operational capability

3.3.2. Completion of development and validation

The main objective of the transition is to ensure that all elements of the development phase are usefully integrated into the deployment phase and that transfer of ownership to the European Community is achieved.

Started in 2004, the Galileo in-orbit validation (IOV) is in an advanced stage. It consists of the design, development and in-orbit validation of a reduced set of four satellites with the associated ground segment and initial operations. The validation of IOV towards the end of 2010 or the beginning of 2011 will complete the development phase.

In order to complete deployment after IOV, the full constellation and associated ground segment will be procured. This includes a validation campaign and upgrades of the current infrastructure and the incorporation of the new infrastructure elements (SoL Centre). Reviews and criteria for accepting the IOV deliveries from European Space Agency will also be defined.

In order to take advantage of early designs from the development phase and in order to meet the objective of a Galileo Full Operational Capability (FOC) by 2013, initial orders for so-called long-lead items, i.e. systems components for which there are a limited number of suppliers and long ordering times, may be placed early in the programme.

Major milestones of the development phase are expected to be:

– Successful qualification of the IOV in 2010/2011, including acceptance of assets developed during IOV.

– Identification of upgrades of the IOV procurement in order to ensure full compatibility with FOC requirements.

– Completion of the 6FP activities on Galileo Service Facilities prototyping and demonstration.

– Conclusion of agreements with third parties, wherever appropriate, to ensure the transfer of ownership of all tangible and intangible IOV assets to the European Community.

3.3.3. Deployment phase

In parallel to the development phase that aims to demonstrate the technical feasibility and the European capacity of implementing an independent satellite navigation infrastructure, the deployment of the full Galileo satellite constellation and the associated ground infrastructure will start. The procurement of the system will include full validation and is foreseen to lead in 2013 to an operational infrastructure owned by the European Community.

The main objective of the deployment phase is to procure and set up the various elements that constitute the Galileo infrastructure, including the completion of the two Galileo Satellite Control Centres (GCC) in Fucino and Oberpfaffenhofen and the Safety-of-Life Centre in Madrid.

In particular, this comprises the procurement of the remaining space and ground infrastructures, system support tasks, launch and operation of services, as well as the development of external interfaces for the future service/application systems. The evolution of the Safety-of-Life Centre to a fully qualified, equivalent GCC by the end of 2013 shall be without additional costs to the agreed Community budget for GNSS for the period 2007-2013. In this case, the necessary measures shall be taken by the Commission to have this centre included in the Galileo network of the previously mentioned two centres.

A delegation agreement between the European Commission and the European Space Agency will be concluded in the course of 2008, pursuant to Article 54(2) of the EC Financial Regulation (see also chapter 3.2), allowing ESA to procure the Galileo FOC in the name and on behalf of the Commission and delivering the Galileo system in a state ready for certification. Procurement will distinguish between six work packages:

– system engineering support,

– ground mission infrastructure completion,

– ground control infrastructure completion,

– satellites,

– launchers and

– operations.

In addition to these,

– ESA will contract a number of smaller work packages, including services required for the functioning of the overall system architecture, test receivers and infrastructure elements.

– the Commission will procure performance monitoring facilities.

One or several steps of deployment will be defined, based on the gradual deployment of the satellite constellation and associated ground segment. The Commission services will determine incremental anchor points in such a way as to offer the biggest benefits to the EU, allowing signals availability to be demonstrated and application developers and equipment manufacturers to validate their products.

In parallel, the hand-over of the Galileo operations and maintenance from the initial operation contracts to the exploitation contracts will need to be prepared. In this context, ESA will issue a transition plan for the transfer of the operations to the designated operator for approval by the European Commission Programme Manager.

Major milestones for the deployment phase are expected to be:

– Launch of the Galileo procurement activities by the European Space Agency[4] in 2008.

– Set-up of an incremental approach in the deployment, in view of a gradual availability of signals.

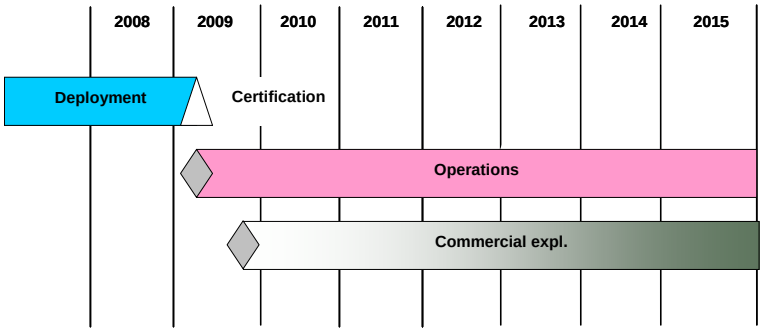
– Full operational capability of Galileo targeted for 2013.

3.4. EGNOS - from deployment to exploitation

3.4.1. Phases of implementation

EGNOS is in its final validation phase. The objective is to enter into the operational phase as of March 2009 and to achieve certification for civil aviation purposes as early as possible afterwards.

[4] The European Space Agency will not only act as procurement agent but also as overall prime. It will therefore have the responsibility to integrate all the segments with support from the system support work package.



3.4.2. Transition to operational phase

The objective regarding EGNOS is to ensure a transition from its deployment phase into an operational stage, which includes both compliance with performance requirements and the setting up of an operator. The EGNOS infrastructure, which augments performances of the GPS and later potentially also GLONASS over Europe, will be fully operational after completion of the final acceptance review.

The activities related to EGNOS therefore are to ensure the operations and exploitation of the system. This implies the management of the EGNOS mission requirement specifications, infrastructure management (ground and space segments), system operations and maintenance, geostationary transponder replacement, system upgrades and system evolution, system/operator certification[5] and standardisation and overall EGNOS marketing and EGNOS integration into Galileo.

As a prerequisite, transfer of ownership of the EGNOS assets from ESA to the European Commission will be concluded and contractual arrangements between the European Commission and the EGNOS operator and infrastructure group (EOIG)[6] will be put in place. EGNOS operations for the period 2009 – 2013 will be contracted out.

Major milestones for EGNOS are expected to be:

– Conclusion of contractual arrangements for EGNOS operations between the EGNOS operator and infrastructure group and the European Commission in 2008.

– Conclusion of an agreement with ESA as regards its role as EGNOS design agent.

– Agreement on the transfer of ownership ESA-EC.

– Ensuring compliance of EGNOS performances to requirements and achieving certification of the system once the transfer of operational responsibility to the operator is achieved in 2009.

– Ensuring operations, maintenance and exploitation of the system.

– Preparation of the EGNOS Master Plan by the Commission's Programme Management Team. This master plan will provide an overview of activity lines covering operations, maintenance, mission and infrastructure evolution and define

5 Including in accordance with Single European Sky Regulations

6 The EOIG (EGNOS Operators and Infrastructure Group) is composed of a number of European air navigation providers who have invested in the EGNOS programme.

the appropriate milestones in the short (IOV), mid (FOC) and long term stages of the project.

3.5. Exploitation and evolution of EGNOS and Galileo

A number of preparatory measures will need to be taken to ensure long term sustainability of the European GNSS programmes. The European Commission will also guarantee the transition towards the full operational and exploitation phase, and ensure the evolution and upgrade of the technology and the infrastructure used.

The goal is to ensure the robustness of the mission requirements with respect to user demands and to set up the proper interfaces with the users. This involves, amongst others, the preparation of concepts of operation and use for the five Galileo services and three EGNOS services, as well as issuing the signal interface control documents.

In order to prepare the post-2013 exploitation phase, the European Commission will launch the preliminary studies to address the commercial aspects as well as the possible contractual and financing structures for the exploitation of the GNSS systems. In particular, emerging user and market requirements will be studied and implications in terms of system evolution and upgrades assessed in coordination with the European Space Agency. The development of new space and ground facilities will equally be addressed, as well as the integration of EGNOS and Galileo.

Furthermore, the potential involvement of the private sector in the management of the exploitation phase of the systems beyond 2013 will be considered, as well as the modalities for this involvement, notably those of a Public-Private Partnership. Based on the results and recommendations of the studies, the Commission's proposals will be provided to the European Parliament and Council.

In terms of the technical evolution of the European GNSS systems, 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.

EGNOS features will be reviewed across evolving requirements and systems, in particular concerning the extension of the service coverage and upgrade of the overlay service, following the evolution of GPS and other GNSS signals and in view of ensuring EGNOS' integration into Galileo.

Major milestones of this string of activities are expected to be:

– Definition of the commercial, legal and financial aspects of the exploitation phase and presentation of a proposal in 2010.

– Monitoring of the evolving user requirements.

– Identification, specification and planning of corresponding upgrades to the systems in operational phase.

– Identification of an innovation policy of the European GNSS systems.

– Before the end of 2013, preparation of the technical transition from deployment to exploitation.

3.6. Application and service development

3.6.1. Action Plan

As stated in the Communication on re-profiling Galileo[7], the GNSS market is expected to grow substantially after 2010. To tap this potential, the development of Galileo will need to be accompanied by a specific effort to develop applications and services, helping European industry to achieve a strong position, develop know-how, and serve niche applications.

The Action Plan for the development of applications and services based on EGNOS and Galileo will build on the Green Paper on Galileo applications launched at the end of 2006.

The major milestone for this activity is expected to be:

– Publication of a Satellite Navigation Action Plan in 2008.

3.6.2. Research and development activities

In parallel to the deployment of the infrastructure, Research and Development activities will be performed in fields such as application and technology development, infrastructure evolution, international activities, standardisation, certification of systems, development of tools and facilities. In preparation for the exploitation of EGNOS and Galileo and to ensure the long-term sustainability from a stable base of the GNSS programmes, an overall coherent approach of the EU research framework activities, the Evolution Programme of the European Space Agency and other, national initiatives will need to be achieved.

It should be noted that the financing requirements for the above mentioned R&D activities on satellite applications are currently not satisfied, in particular as a result of the impact of the decisions on financing of the Galileo infrastructure. New activities in these domains therefore require an increment of funds under the 7th Framework Programme when this is revised in 2010. Financing shall be based on an assessment of previous expenditure on GNSS-related research and technological development and on a GNSS R&D plan for the years 2010 to 2013.

In the meantime, research and development activities will continue, 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.

3.7. Supporting measures

3.7.1. Programme and project support

The objective is to ensure that the Commission possesses the appropriate instruments and resources to ensure the management of the EGNOS and Galileo programmes.

The independent project management experts, contracted in a call for tenders in 2008, will contribute by reviewing the implementation of the GNSS programmes and making appropriate recommendations, in particular with regard to risk management.

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[7] Progressing Galileo: Re-profiling the European GNSS Programmes, Communication from the Commission to the European Parliament and the Council, COM(2007)534, 19.9.2007.

Secondly, expert assistance on issues such as space project management, finance, satellite navigation technology, risk management, legal matters and security may be requested from Member States, where necessary.

In addition, the Commission will regularly meet with ESA and GSA to ensure the orderly technical implementation of the GNSS programmes.

To ensure that Galileo is optimised for use with other systems interoperability has to be achieved at receiver level, for the combination of positioning services and for combined navigation and communication services. These issues are being addressed by the Signal Task Force, set up with the aim to support negotiations between the EU and both the US and the Russian Federation.

Major milestones of these activities are expected to be:

– Contracting of the independent project management experts (mid-2008).

– Definition of key decision points (see chapter 3.7.2 below).

– Regular reviews of ESA's and the contractors' progress against the defined milestones.

– Coordination with Member States and use of national expertise.

3.7.2. Risk mitigation

The aim is to ensure that the objectives of the European GNSS programmes are achieved within cost and schedule. Towards this end, the risks associated with the implementation of EGNOS and Galileo need to be identified and managed.

One of the priority actions under this heading will be to implement a risk management plan covering the programmes at all levels and implemented through the integration of risk mitigation in the project organisation. The risk management plan will need to be adapted to the complexity of the organisation of the implementation of the GNSS programmes, in order to reduce the potential impact of risks in case they materialise. The risk management plan may also require the purchase and operation of risk management utilities by the various entities involved in the GNSS programme.

As far as financial risks are concerned and in line with the requirements of Article 12(2) of the GNSS Regulation, the Commission shall also carry out financial audits.

Key decision points in the implementation of the GNSS programmes permit an assessment of whether functional, financial or scheduling targets as well as the procurement principles as defined in the GNSS Regulation are met. They allow for corrective action to be taken if necessary. In addition, the Commission will carry out technical and financial audits.

Major milestones for this activity are expected to be:

– Definition of a risk management plan.

– Implementation of risk management system and tools.

– Definition of key decision points.

– Technical and financial audits.

3.8. Legal measures

3.8.1. IPR policy

The objective is to ensure the protection of intellectual property rights for tangible and intangible assets of Galileo and EGNOS of which the European Community is the owner.

This will require the definition of an appropriate Intellectual Property Rights strategy for all tangible and intangible elements conceived, designed, manufactured, produced and procured for EGNOS and Galileo. The Commission services will define high level principles and requirements for the management of both Galileo and EGNOS assets, taking into account relevant policies developed elsewhere.

This is expected to lead to:

– Definition of the Intellectual Property Rights strategy regarding all assets developed under the European GNSS programmes.

– Appropriate arrangements for the transfer to the European Communities of assets developed under the Framework Programme.

– Protection of inventions developed under the Galileo procurement.

3.8.2. European Radio-Navigation Plan

In 2009, the European Commission will issue 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, allowing seamless and interoperable services to support security, transport, environment and economic policies in conformity with the EU laws

3.8.3. Liability framework

The objective is to ensure that liability requirements stemming from the utilisation of EGNOS and Galileo services are addressed.

To achieve this, a policy for contractual and non-contractual liability for the different EGNOS and Galileo services will be defined, including the responsibility scheme of the future Galileo and EGNOS operators(s) regarding the service and signal provision. This effort will take into account the relevant work carried out by other organisations.

This is expected to lead to:

– The definition of the liability policy by 2009.

4. RELATED ACTIVITIES

4.1. Security measures

4.1.1. Security framework

The objective of this action is to ensure that adequate security measures are applied to the European GNSS infrastructures.

Achievement of this objective relies on the definition of appropriate technical security requirements for the GNSS systems. It also requires an efficient technology control regime, operated in close cooperation with Member States, that ensures that

the contractual and non-contractual practices related to export control of the specific sensitive technologies follow the applicable rules in the field.

Furthermore, the protection of the spectrum is an essential element for the contractual guarantee of service. The Galileo frequency bands will have to be protected against any possible interference from other applications or GNSS systems (including within the frame of international cooperation with interested countries), and local jamming, spoofing or interference should be fought against in a cooperative manner with local authorities.

Major milestones are expected to be:

– Definition of the main technical security requirements.

– An appropriate technology export regime.

– Protection of the frequency bands against any possible interference from other applications or GNSS systems.

4.1.2. 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 levels.

To this purpose, the Commission will pursue coordination of the various stakeholders at EU level and at national levels in order to ensure an efficient management of PRS related activities and a correct implementation of the PRS Access Policy.

A major milestone will be:

– The definition of an access policy for public regulated services, to be adopted by the Council.

4.2. International agreements

In view of the importance of global and regional satellite radio-navigation systems worldwide, the objective is to ensure that Galileo and EGNOS are coherently integrated into the international scene through the setting up of broad international co-operation and coordination activities. In addition, specific agreements on hosting sites and launch arrangements are necessary for the technical implementation of the Galileo infrastructure. The first phases of the GNSS programmes have helped establish international cooperation on these issues, and the European Commission will pursue those activities. It will also develop new cooperation activities if/when necessary, in particular to secure interoperability and as regards security issues as well as market access. The role of the EU in international fora[8] will also need to be addressed.

Major milestones are expected to be:

– Review of the international cooperation strategy, in particular on interoperability, security and market access.

[8] Including in the UN and in the international coordination effort to build GEOSS, the Global Earth Observation System of Systems.

– Continuation and reinforcement of existing bi-lateral cooperation and preparation of new agreements.

– Strengthening of EU position in international bodies.

5. COSTS, STAFFING AND FINANCING

5.1. Costs

All figures represent a best estimate of the expected procurement costs in a nominal case of competitive supply, effective contract negotiations, and adherence to the foreseen timetable. The prices offered by the private sector, however, and therefore the costs to the Community, will only emerge during procurement negotiations[9].

Item	Estimated costs in millions of Euros
Galileo FOC	
Full operational capability, including	
– Satellites	840
– Launchers	700
– System support	120
– Operations	170
– Ground Mission	270
– Ground Control	45
and	
– FOC Procurement contingency	148
– ESA costs	195
– ESA procurements of « Customer Furnished Items »	133
Total	2621
Contingencies[10]	428
EGNOS	
Exploitation and operations (2008-2013)	330
Support to the Commission	
Project management support and advisory services	26
Grand Total	**3,405**

R&D for applications (2010-2013)*)	80

[9] It is underlined that, in case of delays in political and programmatic decisions, extra costs are anticipated caused by a pro rata increase of costs of current contracts (the In-Orbit-Validation contracts and loss of market opportunity as a result of the arrival of competing systems). It is noted that the IOV contract will allow the procurement of four satellites and their launches, the first satellite control centre, and around the half of required uplink, tracking, and monitoring stations

[10] Possible cost overruns of the IOV phase may be covered by the current financial arrangements and/or the contingencies reserve.

*) Budget article 06 06.Conditional to appropriate funds being available under the 7th Framework Programme when this is revised in 2010.

5.2. Staffing

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

5.3. Financing

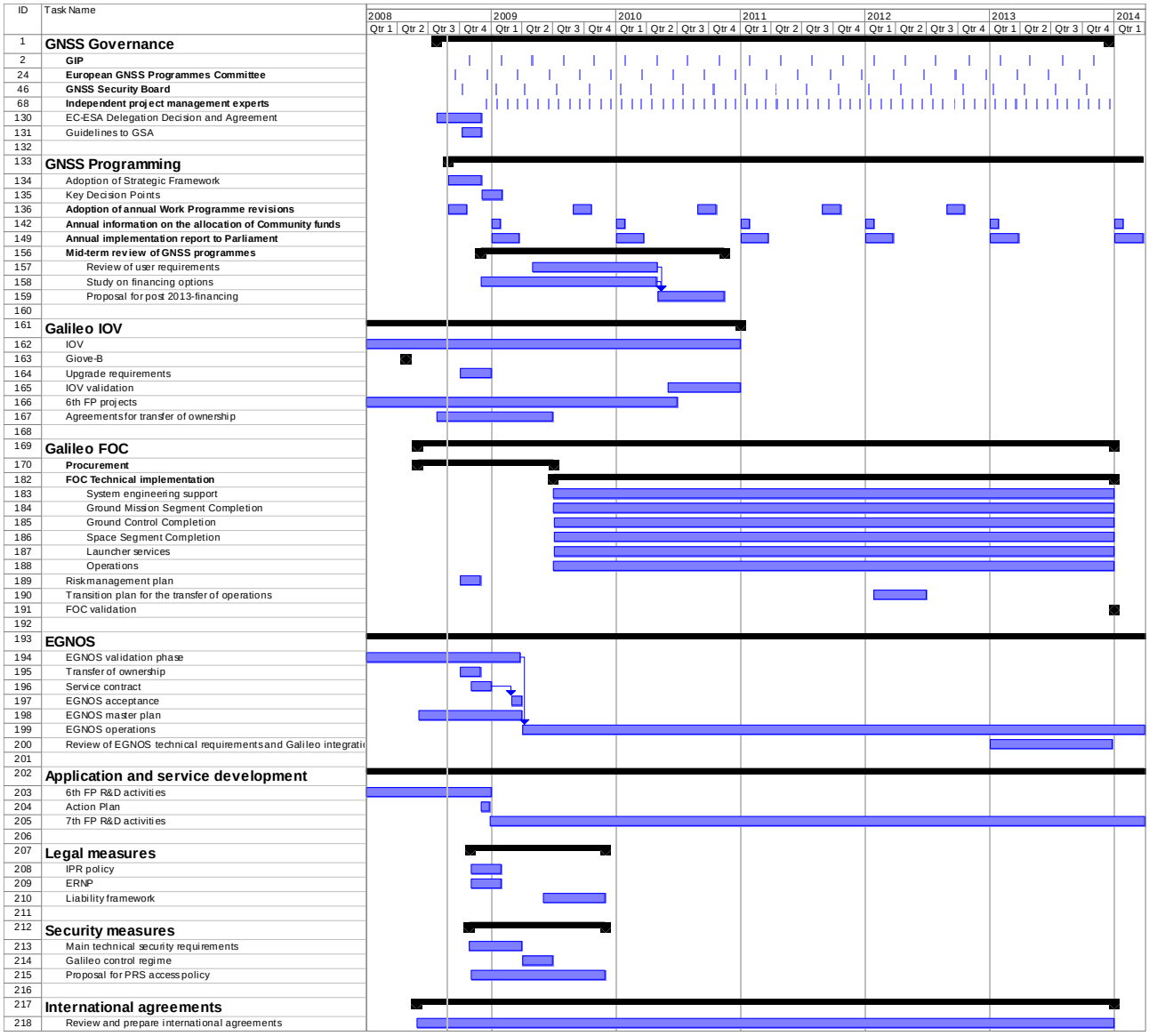
The financial envelope foreseen to implement the activities described in this document is 3.4 billion euros at current prices for the period 2007-2013. This amount includes the sum of 400 million euros made available from the 7th research and development framework programme (budget article 06 06 02).

The indicative schedule of annual commitment appropriations of the GNSS budgetary line is presented in the table below:

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

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

6. INDICATIVE SCHEDULE



ID	Task Name
1	**GNSS Governance**
2	**GIP**
24	**European GNSS Programmes Committee**
46	**GNSS Security Board**
68	**Independent project management experts**
130	EC-ESA Delegation Decision and Agreement
131	Guidelines to GSA
132	
133	**GNSS Programming**
134	Adoption of Strategic Framework
135	Key Decision Points
136	**Adoption of annual Work Programme revisions**
142	**Annual information on the allocation of Community funds**
149	**Annual implementation report to Parliament**
156	**Mid-term review of GNSS programmes**
157	Review of user requirements
158	Study on financing options
159	Proposal for post 2013-financing
160	
161	**Galileo IOV**
162	IOV
163	Giove-B
164	Upgrade requirements
165	IOV validation
166	6th FP projects
167	Agreements for transfer of ownership
168	
169	**Galileo FOC**
170	**Procurement**
182	**FOC Technical implementation**
183	System engineering support
184	Ground Mission Segment Completion
185	Ground Control Completion
186	Space Segment Completion
187	Launcher services
188	Operations
189	Risk management plan
190	Transition plan for the transfer of operations
191	FOC validation
192	
193	**EGNOS**
194	EGNOS validation phase
195	Transfer of ownership
196	Service contract
197	EGNOS acceptance
198	EGNOS master plan
199	EGNOS operations
200	Review of EGNOS technical requirements and Galileo integrati
201	
202	**Application and service development**
203	6th FP R&D activities
204	Action Plan
205	7th FP R&D activities
206	
207	**Legal measures**
208	IPR policy
209	ERNP
210	Liability framework
211	
212	**Security measures**
213	Main technical security requirements
214	Galileo control regime
215	Proposal for PRS access policy
216	
217	**International agreements**
218	Review and prepare international agreements