

Growing **GALILEO**

**GNSS Research and Development
under the Seventh Framework Programme**



The Seventh Research Framework Programme: Setting a new standard in European research



The 7th Framework Programme for research and technological development (FP7) is the European Union's main instrument for funding research in Europe. FP7, which will run from 2007 to 2013, is the natural successor to the 6th

Framework Programme (FP6), and is the result of years of consultation with industry, the scientific community, research and policymaking institutions, and other interested parties.

Since their launch in 1984, the EU framework programmes have played a lead role in multidisciplinary research and cooperative activities in Europe and beyond. FP7 continues this task, and is both larger and more comprehensive than earlier framework programmes. FP7 has a budget of more than EUR 50 billion over its seven-year lifespan, the largest funding allocation yet for such programmes.

FP7 brings all research-related EU initiatives together under a single programme, playing a crucial role in reaching the Union's goals of growth, competitiveness and employment. It is a key pillar for the European research area (ERA), along with a new Competitiveness and Innovation Framework Programme (CIP), education and training programmes, and Structural and Cohesion Funds for regional convergence and competitiveness.

The funds are used to finance research, technological development and demonstration projects. Grants are determined on the basis of calls for proposals and peer review.

FP7 has two main strategic objectives:

- to strengthen the scientific and technological base of European industry;
- to encourage Europe's international competitiveness, while promoting research that supports EU policies.

FP7 research is grouped into four programme categories:

- Cooperation
- Ideas
- People
- Capacities

Each category covers specific programmes corresponding to the main areas of EU research. All specific programmes work together to promote and encourage the creation of European poles of scientific and technological excellence.

Cooperation

The Cooperation Programme is the core of FP7, representing two thirds of the overall budget. It supports collaborative research projects by transnational consortia of industry and academia. Research is conducted under the following themes:

- Health
- Food, agriculture and fisheries and biotechnology
- Information and communication technologies
- Nanosciences, nanotechnologies, materials and new production technologies
- Energy
- Environment (including climate change)
- Transport (including aeronautics)
- Socio-economic sciences and the humanities
- Space

For more information on FP7 participation, go to:
www.cordis.europa.eu/fp7



Galileo and EGNOS in FP7

Bringing European GNSS one step closer to reality

Global Navigation Satellite System (GNSS) research and development activities, namely focusing on Galileo and EGNOS, are addressed under the transport theme of the cooperation programme.

The objective of the transport theme is to develop safer, greener and smarter pan-European transport systems. It aims to mitigate the negative impacts of increased mobility in relation to the environment, energy usage, safety and public health.

The Transport Programme gives emphasis to the following activities.

Aeronautics and air transport:

- reduction of emissions, work on engines and alternative fuels;
- air-traffic management, safety aspects of air transport;
- environmentally efficient aviation.

Sustainable surface transport — rail, road and waterborne:

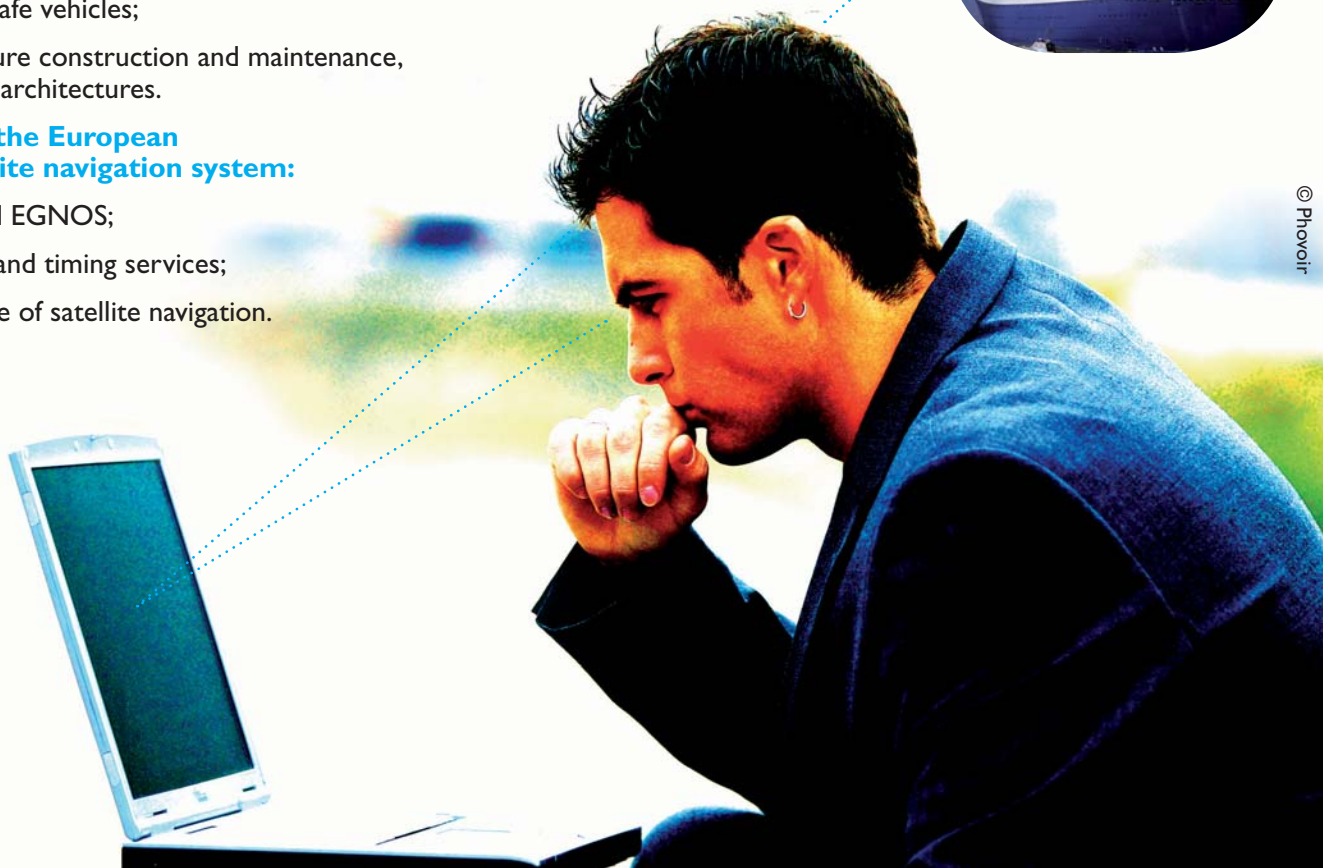
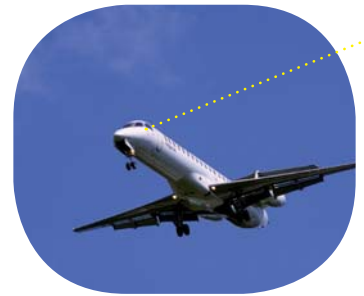
- development of clean and efficient engines and power trains;
- reducing the impact of transport on climate change;
- inter-modal regional and national transport;
- clean and safe vehicles;
- infrastructure construction and maintenance, integrative architectures.

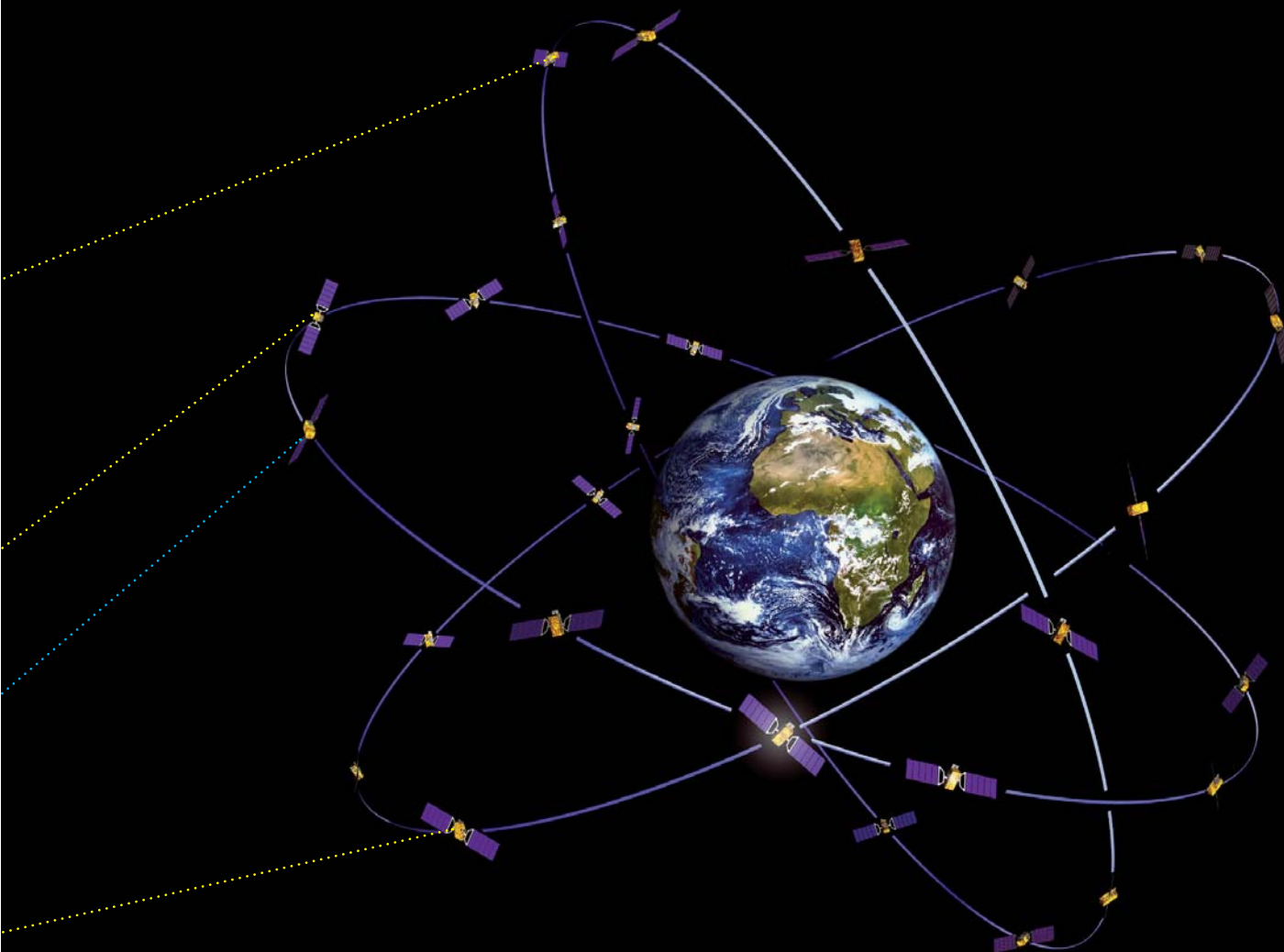
Support to the European global satellite navigation system:

- Galileo and EGNOS;
- navigation and timing services;
- efficient use of satellite navigation.

GNSS research and development activities in FP7 are managed by the European GNSS Supervisory Authority (GSA).

The GSA coordinates its activities with the European Space Agency and takes into account other European Commission activities with potential synergies in applications and programmes (e.g. telecommunications). In addition, FP7 research is coordinated with national GNSS R & D activities.





Four main research activities have been selected for the Galileo sub-theme

Exploiting the full potential

FP7 will encourage the development of GNSS downstream applications. This will drive demand and pave the way for rapid Galileo adoption. In the short term, applications should take advantage of EGNOS which is already available.

Providing the tools and creating the appropriate environment

This research area will improve and complement existing GNSS tools. A particular focus is on the development of tools/test beds to support design, development and simulations for performance trade-offs of multi-function, hybridised terminals. In order to provide the right environment, enablers such as standardisation and certification will be addressed.

Adapting receivers to requirements and upgrading core technologies

By driving the development and technologies of GNSS receivers, customised user terminals and local elements, performance can be enhanced.

Support and international activities

This covers activities that support mission evolution and studies supporting various strategic aspects. Also included in the area are activities that foster international relations and cooperation in the field of GNSS.



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Applications

The success of Galileo depends on its market penetration in a wide range of GNSS applications and services. The business potential generated by these applications will attract private-sector investment.

FP7 invests in the development of applications with wide public interest. It aims to improve the quality or the efficiency of public services across the EU. Research activities will also support the development of other GNSS applications, taking into account:

- the expected impact in terms of market penetration and economic value created;
- the natural positioning of public funds in applications with high potential and high risk, less prone to attract private investment;
- an adequate balance of risks in the portfolio of FP7 projects.

Coordinated Approach

The GSA coordinates its activities with the European Space Agency (ESA) to ensure an efficient complementarity of their respective R&D programmes, aiming at the competitiveness and use of European GNSS, as well as the competitiveness of European industry.

GNSS research activities will take into account other European Commission (EC) activities with potential synergies in terms of applications and systems, including, for example, the global monitoring for environment and security (GMES) and EU satellite telecommunications programmes. Ongoing coordination with other EC programmes, namely those managed by the Research, Information Society and Energy and Transport Directorate-Generals, will also be maintained.

Because of the global scope of Galileo and EGNOS, international partners have been involved in the process, mainly in the development of applications and in the evolution of the system.

Strategic Objectives

GNSS Research and development activities under FP7 are based on some key principles.

- Create economic value for Europe — generating a return for the public sector, industry, SMEs, users, etc.
- Ensure European GNSS system competitiveness — helping EGNOS/Galileo become GNSS market leaders.
- Maximise public benefits — supporting the development of applications that improve the quality and the efficiency of public services and the use of public resources.
- Enhance international relations — involving international partners in European GNSS projects, increasing trade and resulting in wider international cooperation.



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Spotlight on SMEs

SMEs play an important role in the innovation process by developing new visions and focusing research efforts. They have the ability to efficiently convert research results into business assets.

It is therefore necessary to expand the involvement of SMEs in the GNSS innovation processes and in implementing GNSS research activities.

The GNSS research programme is tailored to provide opportunities for SMEs to finance early-stage research and prototype developments, and to establish strategic partnerships.

The GSA also is creating new tools to provide wide support to SMEs willing to invest in GNSS applications, such as dedicated advisory services, networking opportunities and a platform for global visibility.

The priorities and objectives of FP7 GNSS research takes into account the special needs of SMEs. They form an important part of the GNSS research consortia together with industry, national institutions, universities and public research entities.

Information and Assistance

National contact points (NCPs) have been set up to give personalised advice to researchers and organisations intending to participate. Contact your NCP by phone, fax or e-mail in your national language, and explain your situation and your ideas.

The details of your national contact point can be found at:

www.cordis.europa.eu/fp7/get-support_en.html

For more specific information on GNSS research under FP7, contact the GSA at:

research@gsa.europa.eu

or consult the GSA website: www.gsa.europa.eu

FP7 GNSS research call documents can be found at:

<http://cordis.europa.eu/fp7/calls>



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FP6 — laying the groundwork

With FP7, the GSA aims to build upon the successful results of Galileo research and development activities under FP6.

Activities covered in each call included the following.

First call:

- preliminary user receiver development;
- local elements core technology development;
- introduction of Galileo services using EGNOS;
- application market development;
- initial mission implementation activities.

Second call:

- early preparation of market penetration;
- optimisation of the Galileo navigation mission and the complementary non-navigation missions;
- the benefits of combined use of Galileo and GPS services;
- support for European industry in key technological developments;
- the involvement of SMEs to underpin innovation;
- the recognition of the international dimension of Galileo.

Third call:

- tracking and tracing;
- crisis management;
- time and synchronisation;
- utilisation of the PRS;
- completion of GNSS signal simulator for receiver testing.

For more information on GNSS research funded under the 6th Framework Programme, go to:

<http://www.gsa.europa.eu/go/randd/fp6>



SIXTH FRAMEWORK PROGRAMME



European GNSS Supervisory Authority: Dedicated to making Galileo happen

By developing a new generation of global navigation satellite systems (GNSS), Europe is opening new doors for high-technology industry development, job creation and economic growth. With Europe in the driving seat, Galileo has the potential to become a cornerstone of the global radio navigation positioning system of the future.

Given the strategic nature of European satellite positioning and navigation programmes (which include both EGNOS and Galileo) and the need to ensure that essential public interests in this field are adequately defended and represented, the European GNSS Supervisory Authority (GSA) was established to manage the public interests and to be the regulatory authority for the European GNSS programmes, while laying the foundations for a fully sustainable and economically viable system.

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Publications Office
Publications.europa.eu

ISBN 978-92-9206-005-3