

FACT SHEET

What is Galileo?

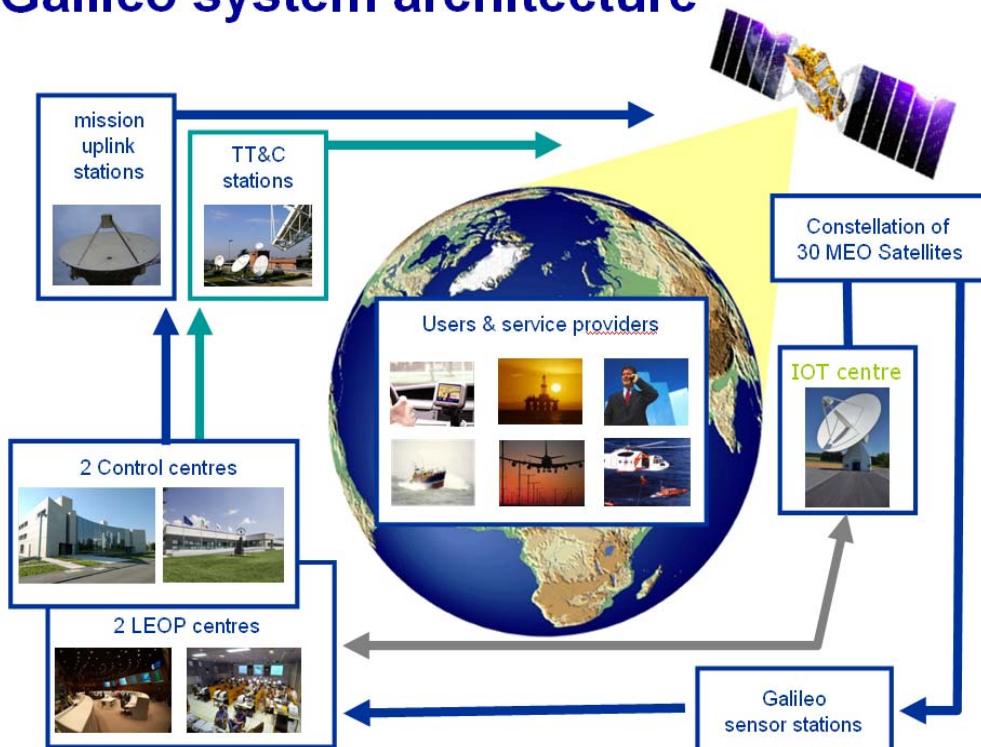


Galileo is the European programme for a global navigation satellite system, providing a highly accurate, guaranteed global positioning service under civilian control. It consists of 30 satellites and the ground infrastructure. Its modern and efficient infrastructure will enhance Europe's technological independence, and make it interoperable with GPS and GLONASS. Galileo is a joint initiative of the European Commission (EC) and the European Space Agency (ESA).

How Galileo works

Galileo will be composed of 30 satellites (GPS has 24). With the satellites taking about 14 hours to orbit the Earth at 23,000 km high, there will always be at least 4 satellites visible anywhere in the world. The 30 satellites will be in 3 orbital planes at a 56 degree angle to the equator, which will provide coverage to the polar regions.

Galileo system architecture



Status June 2011

Galileo also depends on an extensive ground-based infrastructure, which will have to make sure that time and positioning data is extremely precise – one billionth of a second error means a positioning error up to a range of 30cm. This ground-based



infrastructure includes sensor stations located worldwide, 2 control centres, Mission Uplink stations, and TT&C (Telemetry, Tracking and Command) stations.

Two main phases of the programme

1. During the In-Orbit Validation (IOV) phase, the system is assessed through tests, the operation of two experimental satellites and a reduced constellation of four operational satellites and their related ground infrastructure. The first 2 Galileo satellites will be sent to the first orbital plane this year, followed by another 2 in the second orbital plane next year.

2. The Full Operational Capability (FOC) phase consists of the deployment of the remaining ground and space infrastructure, including an intermediate initial operational capability phase with 18 satellites in operation (the four IOV satellites plus 14 others). By 2015, 18 satellites should be in place, followed by the rest in 2020. The full system will consist of 30 satellites, control centres located in Europe and a network of sensor stations and uplink stations installed around the globe.

Launching

The first 2 Galileo satellites will be the first ESA mission ever to be launched by the Russian Soyuz rocket from ESA's launch site in Kourou French Guiana (in 2011 and 2012). This is a great achievement for international cooperation. Until now the Soyuz (which has successfully completed 1,700 launches) has only ever been launched from Russia's own launch sites in Baikonur in Kazakhstan and Russia itself.

Funding

The operational phase of the project is fully funded by the EU which has allocated €2.4B€ for the first 14 satellites and its associated ground segment. An estimated 1.9 B€ will be necessary in the next multiyear EU budget period, 2014-2020. The annual running costs are estimated to be about 800m euros for both Galileo and its precursor system, Egnos.

Who is involved

The definition phase and the development and In-Orbit Validation phase of the Galileo programme are carried out by the European Space Agency (ESA) and co-funded by ESA and the European Union. The Full Operational Capability phase of the Galileo programme is fully funded by the European Community and managed by the European Commission. The Commission and ESA have signed a delegation agreement by which ESA acts as design and procurement agent on behalf of the Commission.

General information about the European
Global Navigation Satellite Systems:
www.satellite-navigation.eu
www.esa.int/esaNA
www.ec.europa.eu/enterprise/policies/satnav

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