

# EGNOS benefits in downstream applications

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23<sup>rd</sup> November 2011

GSA Market Development

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# Galileo takes off



The launch of the first two Galileo IOV satellites took place successfully on 21st October from Kourou, in French Guiana.



<http://www.youtube.com/watch?v=lbnie1dt-Gs>



# The Galileo implementation plan - roadmap

**In order for Galileo to be recognized by the downstream market as the second satellite navigation system of choice it is key to deliver early services as soon as 2014/2015.**

**Galileo System Testbed v1**  
Validation of critical algorithms  
**2003**



**Galileo System Testbed v2**  
2 initial test satellites  
**2005**



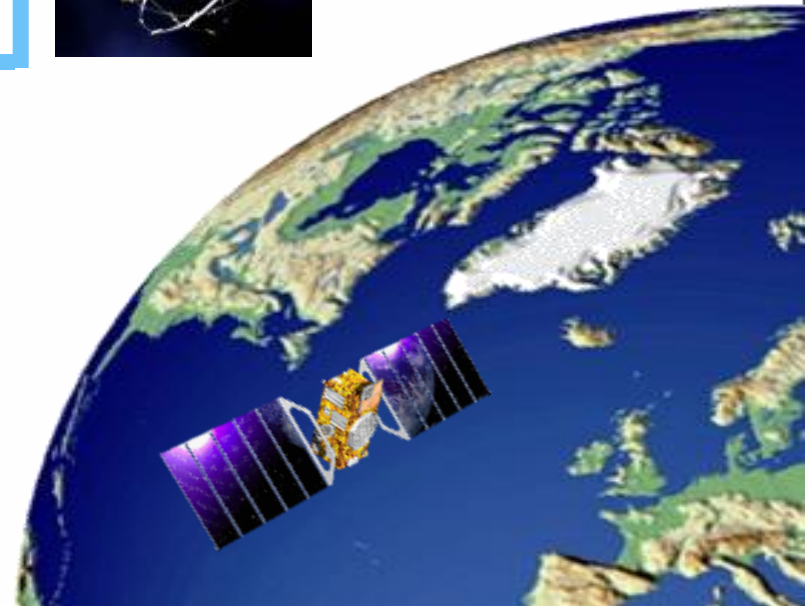
**In-Orbit Validation**  
2 IOV satellites plus  
ground segment  
**2011**



**Initial Operational Capability**  
Early Services for OS, SAR, PRS  
18 satellites  
**2014/2015**



**Full Operational Capability**  
All services, 30 satellites  
**2019/2020**



- EGNOS: the European SBAS
- EGNOS applications and benefits
- How GSA directly supports SMEs



# The European GNSS Programmes: EGNOS and Galileo

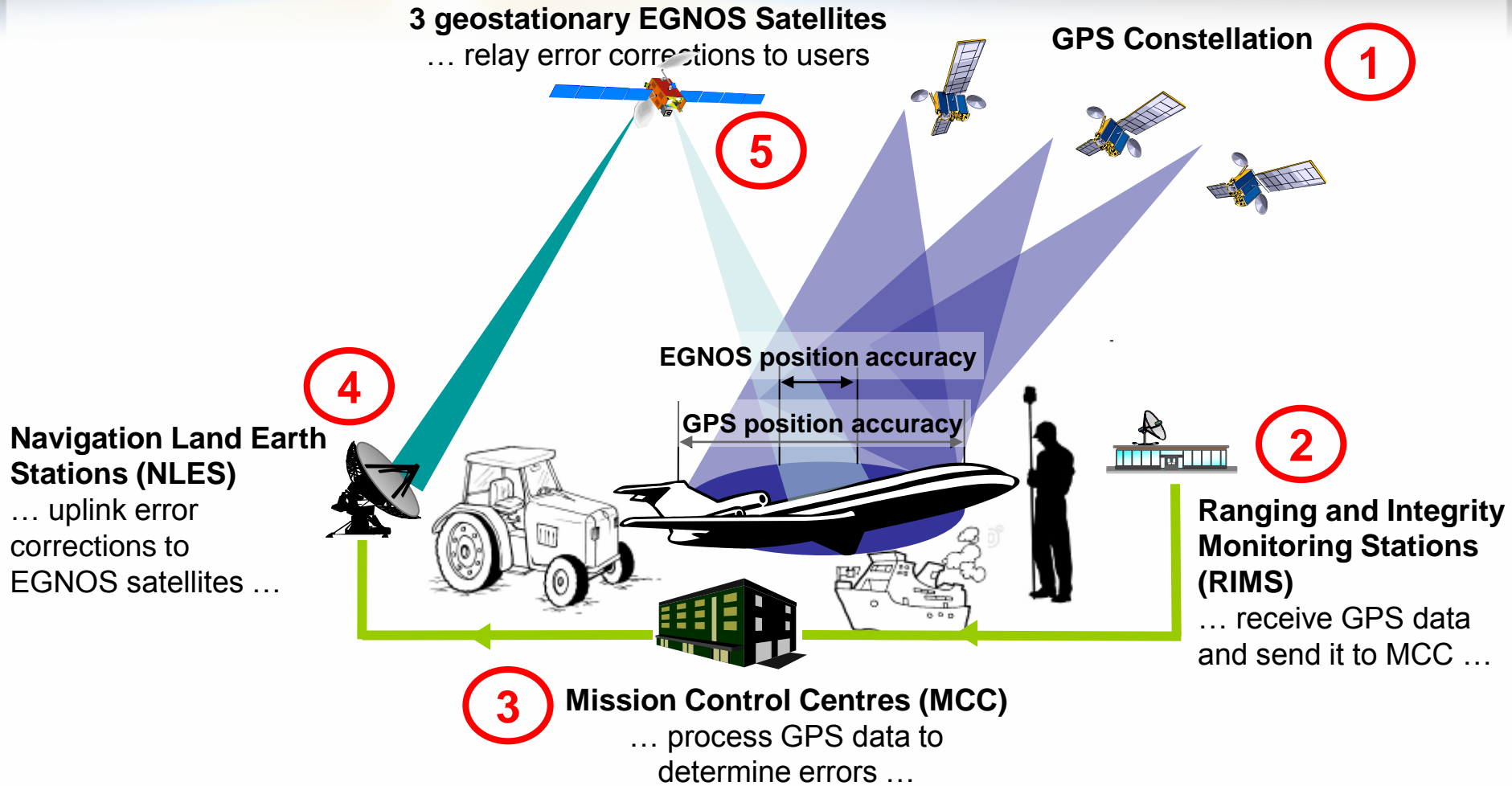


- Global Navigation Satellite Systems (GNSS)
- Compatible with most other GNSS
- Inter-operable with GPS
- 2 fully operational IOV satellites
- 18 satellites in 2014/15
- Will support 5 services

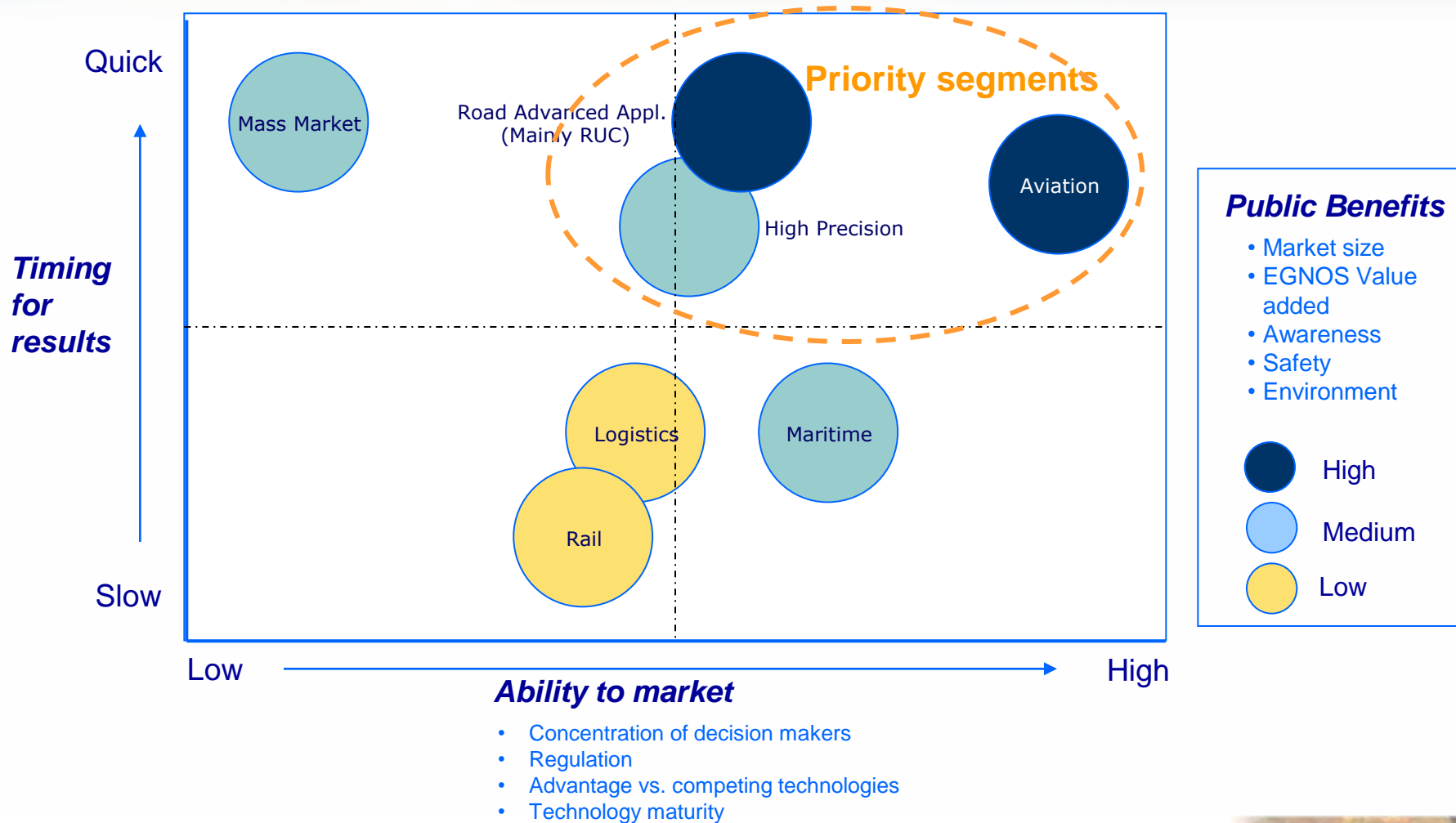
- Satellite Based Augmentation System (SBAS)
- Measures and improved GPS performance
- Sends corrections to users via satellite or terrestrial links (EDAS)
- Certified for Safety Of Life since March 2011
- Covers most of EU
- Planned expansion to Africa, Middle East and Eastern Europe



# EGNOS improves GPS positioning



# 3 segments have been identified as priority for EGNOS adoption



Source: GSA analysis, 2009



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# EGNOS benefits Aviation

## EGNOS provides significant benefits for passengers, airports, airlines and the environment

- **EGNOS SOL** ensures **integrity** and **continuity** of positioning system
- **Safer landings** at airports not equipped with ground-based navigation aids
- **Low-cost** alternative to ground-based navigation aids (ILS CATI)
- **Increased airports capacity**
- **Less delays, diversions and cancellations**



# EGNOS has been certified for aviation in March 2011 and its adoption is accelerating

## EGNOS experimental or planned procedures

 **France**

51 procedures  
20-30 procedures  
scheduled per year  
to reach full IFR  
runway coverage by  
2016

Operational ATC  
training guide  
written

 **Spain**

15 procedures  
  
AENA test aircraft  
equipped  
  
Flight trials in  
Nov 2010 at  
Cordoba airport  
getting local  
media coverage

 **Italy**

5 procedures  
  
70% of airports  
identified as  
potential  
beneficiaries of  
EGNOS

 **UK**

2 procedures  
  
Growing  
number of  
operators  
contacting  
NATS

 **Poland**

2 procedures  
  
Flight trials on  
March 14-15

 **Germany**

1 procedure  
  
45+ Baro-VNAV  
procedures  
ready



# EGNOS benefits Agriculture

## In Agriculture, EGNOS provides significant benefits in terms of costs and environmental impact

- **Less costly** than high tech solutions (like RTK), yet sufficiently precise for many high precision agriculture applications (e.g. tractor guidance)
- **Reduced environmental impact** through lower use of pesticides and fertilizers (more precise spraying)



# Device manufacturers recognized EGNOS value added and are offering EGNOS-only products



CO-PILOT TS  
**CLAAS**



MOJO MINI  
**Leica**



EZ-GUIDE 250  
**Trimble**

## Product characteristics

- Pass to pass accuracy of +/- 15 cm
- EGNOS-only corrections
- Ideal for fertilising and seeding
- Entry price, affordable for all farmers

## EGNOS effect on farmers

- They start with EGNOS
- They appreciate the benefits
- In few years, some of them, migrate to advanced systems to cover new functions



# EGNOS benefits Road

## In Road, EGNOS provides significant benefits in terms of costs, speed and effectiveness

- **Automatic road tolling** is less costly than toll booths
- Allows **pay per use insurance**, which is more fair to the user
- Many other benefits in terms of reduced transport time, more effective **logistics** (e.g. fleet management)
- More effective **emergency management** (eCall as standard equipment in all new cars after 2015)...



# EGNOS benefits Mapping

## In Mapping, EGNOS provides an effective option for a wide range of mapping applications with meter accuracy

- For many mapping applications meter level accuracy is sufficient
- Beneficial for applications such as **thematic mapping** for small and medium municipalities, forestry and park management as well as surveying of utility infrastructures
- Most of the devices used for Mapping are already EGNOS-ready
- **EDAS service** could accelerate EGNOS adoption



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# GSA role within EU GNSS programmes

Political Oversight

European Council  
and Parliament

Programme Oversight  
and Programme management

European  
Commission

GNSS Programme  
Committee

Execution

European Space  
Agency (ESA)

delegation

delegation  
assistance

European GNSS Agency  
(GSA)

IOV Contracts

FOC Contracts

Security centre (GSMC)

Security accreditation

Marketing of the systems

Market monitoring

Applications R&D programme

Market  
Preparation

Upstream (space) industry

Downstream (applications) industry





# GSA is managing FP7 programme in the area of satellite navigation

## *Galileo FP7 Strategic Objectives*

- Create economic value
- Ensure European GNSS competitiveness
- Maximise public benefits
- Project the image of Europe

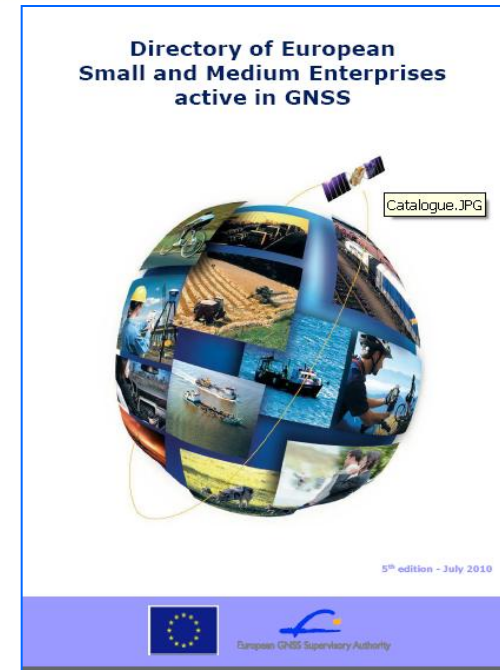


## *Galileo FP7 2011 statistics*

- 74 proposals submitted to the dedicated SME call
- 2 stage process reduced administrative burden
- 80 SMEs received funding
- 7mIn EUR distributed only in the SME call



# GSA is providing free market intelligence



**GNSS market report:  
AVIATION - ROAD - LBS – AGRICULTURE**

Full version: [www.gsa.europa.eu](http://www.gsa.europa.eu)

**Directory of SMEs active in GNSS:**

Full version:  
[www.gnss-in-eu-regions.info](http://www.gnss-in-eu-regions.info)

# THANK YOU FOR YOUR ATTENTION



EGNOS, it's there. Use it.



Navigation solutions  
powered by Europe

[www.egnos-portal.eu](http://www.egnos-portal.eu)

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Market Development

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