EGNOS

EGNOS, it's there. Use it.

EGNOS MARKET ACHIEVEMENTS AND STRATEGY

EGNOS Service Provision Workshop 2016
Warsaw, 27th September 2016

Gian Gherardo Calini
Head of Market Development Department

Updates and recent achievements in transport-market segment

Aviation

- **12 operational LPV 200 procedures**e in four parallel runways (28th April)
- **296 LPV/LPV200, PinS + 88 EGNOS enabled LNAV/VNAV**
- **25% of Business aviation flights with LPV capability**
- **NEW EGNOS for aviation support programme: 2 Call for Proposals funding 27 projects with €12 million** supporting **EGNOS** adoption benefiting aerodromes and operators

Maritime

- **The IMO recognised Galileo as part of the World Wide Radio Navigation System**
- **SOLAS Receivers: c.a 90% of manufacturers offer a SBAS Receiver and c.a 70% mention EGNOS**
- **Non SOLAS Receivers: c.a 90% of manufacturers offer a SBAS Receiver and c.a 80% mention EGNOS**
- **Specific SBAS working group created at RTCM**

Rail

- **Publication of the updated rail roadmap** with main stakeholders
- **Operational scenarios for E-GNSS based signalling delivered by industry** in the frame of NGTC project as a milestone for future virtual balise development
- **Agreement with Shift2Rail on future coordination regarding GNSS related R&D activities**

EGNOS

European Global Navigation Satellite Systems Agency

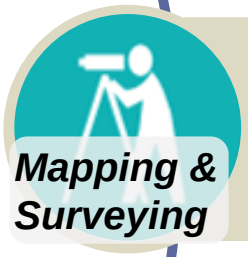
ESSP

Precise navigation, powered by Europe

Updates and recent achievements in mass market and high precision segments

Road

- Road Tolling for trucks in EU: EGNOS readiness in 88% of GNSS receivers (1.8 Million)
- eCall: Technical specifications published for testing of the GNSS receiver with EGNOS enabled in every new car from April 2018 (11Million registrations/year in Europe)



Mapping & Surveying

- 87% of GNSS receivers are EGNOS enabled
- EGNOS integrated in 100% of newly sold handheld mapping devices

Agriculture

- Almost 80% of European GNSS enabled tractors are using EGNOS
- GSA prize Farming by Satellite for Young Farmers

EGNOS

European Global Navigation Satellite Systems Agency

ESSP

Precise navigation, powered by Europe

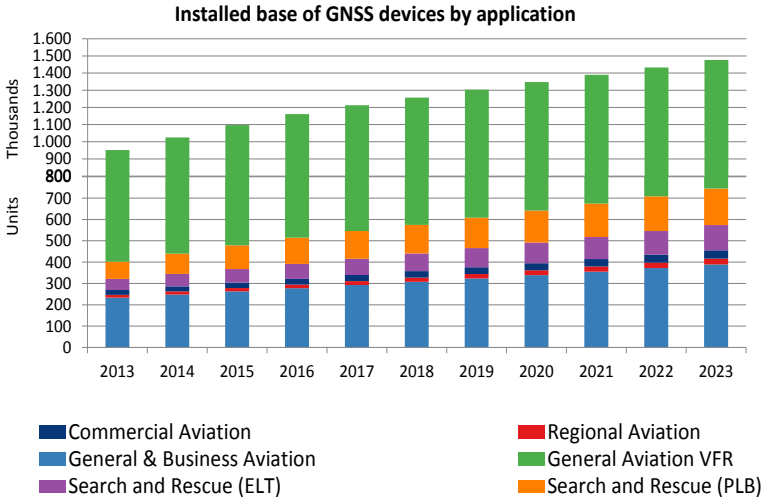
GNSS User Technology report

Sign up for the alert notification at GSA website now!

EGNOS in Aviation

Applications

- EGNOS based procedures **– LPV200 approaches equivalent to CAT I instrument landing system (ILS) procedures**
- Rotorcraft operations, e.g. Point in Space
- Support to navigation in other phases of flight
- Surveillance, e.g. ADS-B
- Airport operations
- Drone guidance and navigation



The first LPV-200 approaches were implemented at Paris Charles de Gaulle Airport (LFPG) on 3 May 2016 after LPV200 declaration on 29 September 2015

Where we want to be by 2020:

- More than **500 EGNOS based procedures** planned
- **Growing number of retrofit solutions and equiped operators**
- EGNOS/EGNSS as a key enabler for **Communication, Navigation and Surveillance** for all flight phases

How to get there:

- Promote benefits of EGNOS based approaches and other applications
- Funding for procedure/operators and other applications
- Feasibility studies, CBAs, technical assistance and new applications development and validation
- Partnership with user communities and user groups establishment
- Contribution to regulation (e.g. PBN in the EATMN, SPI IR, pilot training, non instrument runways)

EGNOS

European Global Navigation Satellite Systems Agency

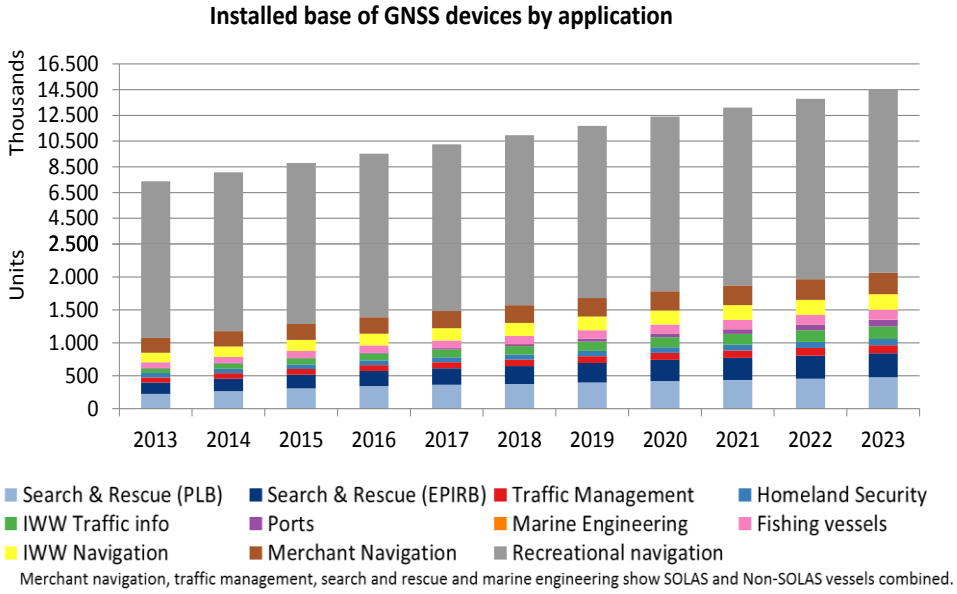
ESSP

Precise navigation, powered by Europe

EGNOS in Maritime

Applications

- Merchant navigation
- Recreational navigation
- Manoeuvring operations
- Traffic Management
- Port operations and Environmental protections



Where we want to be:

EGNOS adopted by maritime users for safety-related applications.

By 2020: EGNOS complementing DGNSS infrastructure providing integrity information for inland and coastal waters.

How to get there:

- EMRF WG: Service provision aspects
- IALA PNT WG: Guidelines for the transmission of EGNOS corrections via IALA beacons and AIS
- RTCM SBAS WG: Guidelines for SBAS shipborne receivers
- IMO: EGNOS recognition

Ca. 80% of GNSS receivers models are EGNOS enabled

Maritime
Joint User Fora: EMRF and NMSP

The European Maritime Radionavigation Forum

It gathers together different bodies from maritime administrations to shipowners' organisations to focus on the co-ordination of European maritime interests in the field of radionavigation systems for development within Europe

NMSP Forum involves EU national maritime service providers

Join Us!

Joint EMRF-NMSP Workshop on 29th September to cover the following topics:

- Roadmap update for EGNOS v2 adoption in SOLAS Vessels
- IMO recognition process
- Service Provision Aspects
- Transmission of EGNOS corrections via IALA beacons and AIS
- New EGNOS maritime safety service and shipborne receivers
- User's requirements for navigation and operations in ports

EGNOS

European Global Navigation Satellite Systems Agency

ESSP

Precise navigation, powered by Europe

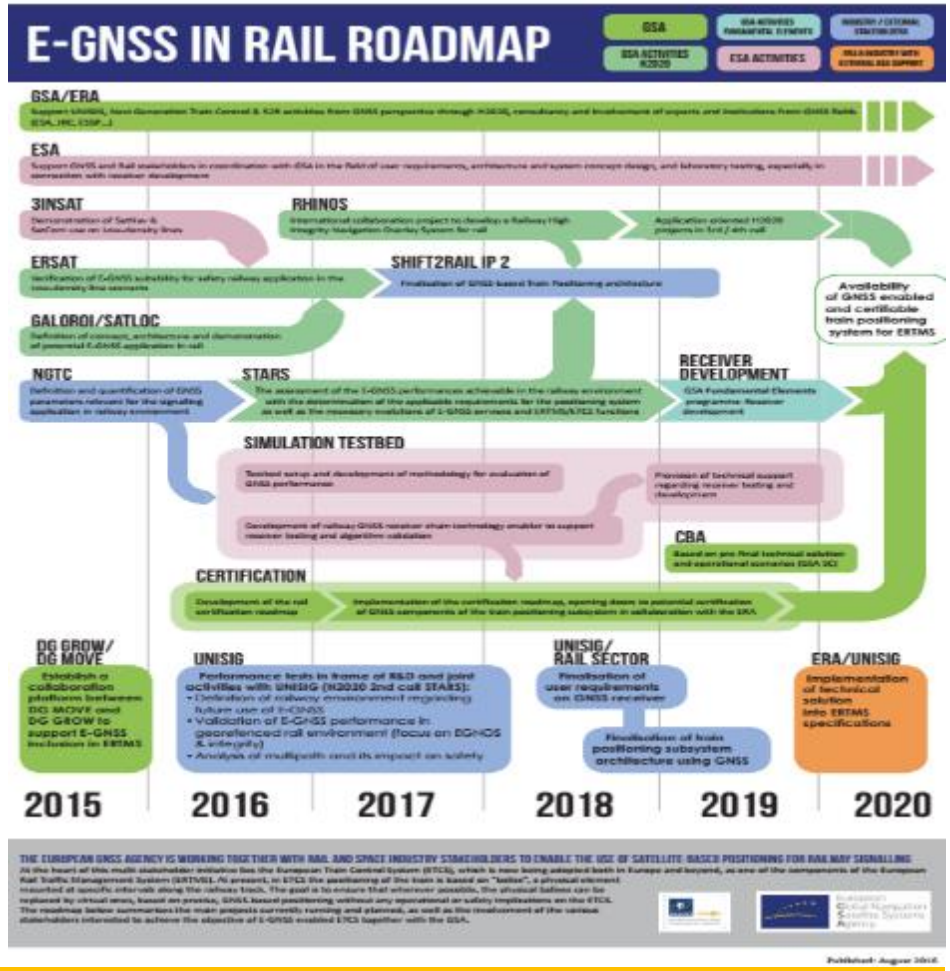
EGNOS in Rail

Where we want to be:

- EGNSS adopted as one of the key elements of the train command and control solutions enabling safe and efficient operations of low density lines
- EGNSS adopted within evolutions of ERTMS for main lines

How to get there:

- Support UNISIG in their effort to define industry requirements
- Coordinate relevant R&D activities together with key funding and standardization bodies (EC, ERA, ESA, ESSP, UNIFE, UNISIG and Shift2Rail)
- Cooperate with railway associations and EC to foster the role of EGNSS in the evolutions of ERTMS standard and in the standardization and certification of EGNSS receivers

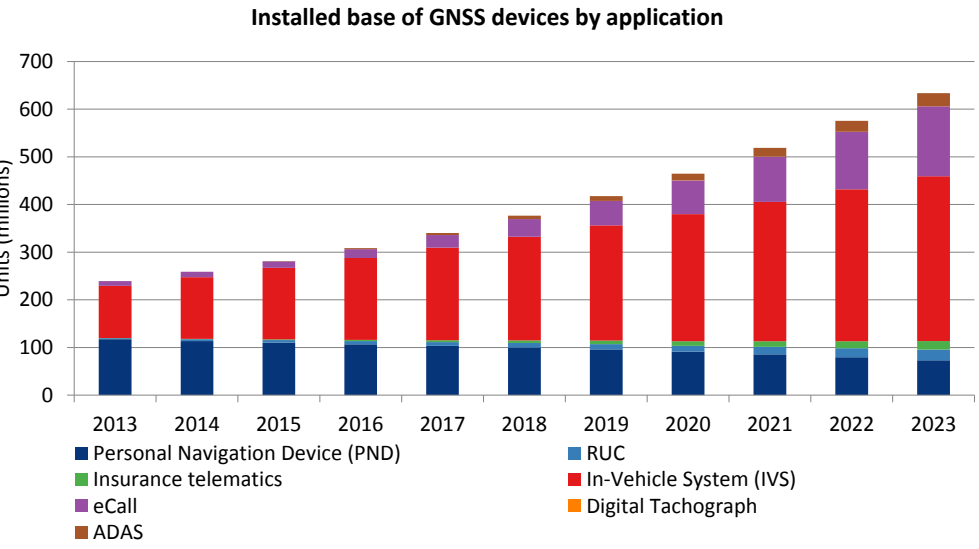


GSA is leading development of signalling and train control solutions based on GNSS together with key partners with the key objective to include E-GNSS into ERTMS

EGNOS in Road

Applications

- eCall
- Road User Charging
- Smart Tachograph
- Tracking of dangerous goods and transport of livestock



Where we want to be by 2020:

- EGNOS enabled in every new passager car model and commercial trucks in Europe:
  - 40 Millions cars and vans
  - 2 Millions heavy trucks

How to get there:

- Leveraging the benefits of **EGNOS in the EETS regulation review**
- Promote and facilitate **EGNOS testing as of the eCall and Smart Tachograph regulations**
- Strength the **cooperation/R&D** with car makers, OEM, Tier 1 suppliers, decision/ standard makers.

EGNOS

European Global Navigation Satellite Systems Agency

Two regulations in Europe are accelerating the business case for EGNOS in cars and trucks

Road Tolling

- **Road User Charging** GNSS supports toll operators in charging levies in compliance with the European Electronic Tolling System Directive

eCall

From April 2018

- **eCall** system will send an emergency call to 112 in case of accident, including precise location, accelerating assistance to drivers

Two regulations in Europe are accelerating the business case for EGNOS in cars and trucks

Road Tolling

eCall

EGNOS makes the difference!

EGNOS

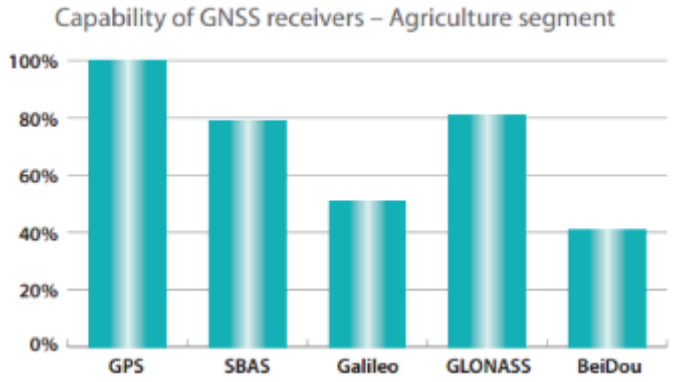
Satellite Systems Agency

Precise navigation, powered by Europe

EGNOS in Agriculture

Market Trends

- The uptake of precision agriculture worldwide continues to grow, thanks to the benefits provided to farmers in terms of increased productivity
- Most receivers SBAS/EGNOS enabled
- More demanding users are driving the evolution of precision agriculture towards all-around farm management solutions
- Uptake of usage of drones in precision farming
- GNSS supports the agri-environmental policies on both a regional and global scale



Where we want to be by 2020: EGNOS preferred entry technology for precision agriculture in Europe, Africa and Middle East

Getting there leveraging EGNOS Benefits:

- Enhance precision without expensive investments
- Eliminate waste and over-application of fertilisers/herbicides
- Save time and reduce fatigue
- Extend equipment lifetime by optimising its use, optimise crop yields and increase profit margins

Ongoing actions:

- Communicating EGNOS benefits to farming community - User Fora
- Closer cooperation with machine manufacturer to promote EGNOS
- GSA prize Farming by Satellite for Young Farmers
- Identification of opportunities within the new Common Agricultural Policy
- Build on H2020 R&D activities

Almost 80% of European GNSS enabled tractors are using EGNOS

EGNOS

European Global Navigation Satellite Systems Agency

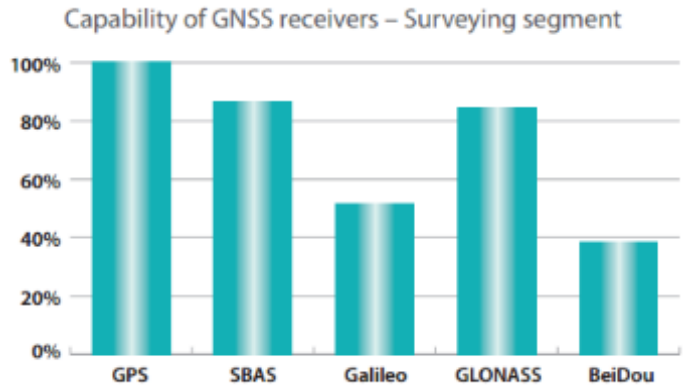
ESSP

Precise navigation, powered by Europe

EGNOS in Surveying/Mapping

Market Trends

- Most receivers SBAS/EGNOS enabled
- Reduction of GNSS receivers prices transforming mapping into more accessible activity
- Users tend to use consumer-grade handheld devices such as smartphones or tablets in connection with professional/GIS grade receivers
- New professional users in environmental and engineering disciplines, together with GIS communities, are fostering the use of geo-information and the development of new applications



Where we want to be by 2020: EGNOS preferred entry technology for mapping and GIS in Europe, Africa and Middle East

Getting there leveraging EGNOS Benefits:

- An effective option for a wide range of mapping applications where both metre accuracy and real-time positioning is adequate
- It's free and does not require any installation of hardware nor investment in ground infrastructure nor ongoing subscriptions
- Most new GNSS devices are EGNOS-enabled
- Covers the majority of Europe, with no white spots

Ongoing actions:

- Leveraging surveying associations (e.g. CLGE) to identify user needs for further take up
- Communicating EGNOS benefits to surveying community - User Fora
- Closer cooperation with GIS industry
- GSA prize for Young Surveyors
- Build on H2020 R&D activities

87% of GNSS receivers are EGNOS enabled

EGNOS

European Global Navigation Satellite Systems Agency

ESSP

Precise navigation, powered by Europe

We are committed to ensure User Satisfaction

EGNOS User Satisfaction Process

- GSA monitors EGNOS User Satisfaction via a yearly User Satisfaction Survey evaluating:
  - Contractual KPI to the EGNOS service provider
  - Metrics to improve the service provision
  - Actions to improve user satisfaction

- Based on this, ESSP builds a continuous user support improvement process

Galileo User Support

- GSA built the first User Centre for
  - Providing information via a web site
  - Answering user requests
  - Publication of NAGUs (Notification Advisory to Galileo Users)

- Website visited from **83** countries in the latest month
- **152** users registered

H2020 Galileo 2017 Call

Source: www.visionaryadvertising.co.uk

H2020 Open Call: Applications in Satellite Navigation-Galileo-2017

Type of Action	Topic	Budget (EUR mln)	Funding rate	Indirect costs
IA	EGNSS Transport Applications	14.50	**70%** (except for non-profit legal entities, where a rate of 100% applies)	**25%** of the total eligible costs excluding: • Subcontracting • Costs of resources made available by 3rd parties • Financial support to 3rd parties
IA	EGNSS Mass Market Applications	9.00		
IA	EGNSS Professional Applications	8.00		
CSA	EGNSS Awareness raising and capacity building	1.50	**100%**	
	Total budget:	33.00	**Opening: 08** November 2016 **Deadline: 01** March 2017	

Work programme and submission :

https://www.gsa.europa.eu/r-d/h2020/introduction
https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/calls/h2020-galileo-gsa-2017.html

IA: activities aimed at producing plans and arrangements or designs for new, altered or improved products, processes or services.
CSA: accompanying measures such as standardisation, dissemination, awareness-raising, networking, policy dialogues and studies.

Horizon 2020 Space Information Days - Prague 4-5 October

Agenda and registration

http://www.spaceinfoday.eu/h2020-space-infoday/pages/14920-information-day-prague

EGNOS

European
Global Navigation
Satellite Systems
Agency

ESSP

Precise navigation,
powered by Europe

THANK YOU FOR YOUR ATTENTION

European
Global Navigation
Satellite Systems
Agency

Gian Gherardo Calini

Head of Market Development

Gian-Gherardo.CALINI@gsa.europa.eu

www.gsa.europa.eu