



EGNOS, it's there. Use it.

EGNOS MARKET STRATEGY AND ACHIEVEMENTS

EGNOS Service Provision Workshop 2015

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European
Global Navigation
Satellite Systems
Agency



Precise navigation,
powered by Europe



Integrated market development for E-GNSS adoption with dedicated tools

DOWNSTREAM VALUE CHAIN



MARKET SEGMENTS

Road

Aviation

Maritime

Rail

LBS

Agriculture

Mapping

Governmental

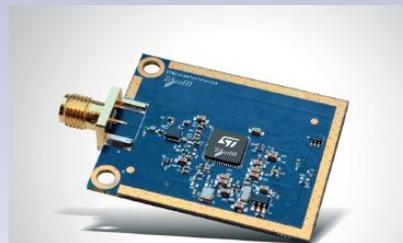
Understanding market and users



Stimulating

DEMAND and ADOPTION

cooperating with receivers manufacturers



Supporting a EU

COMPETITIVE OFFER

of services, applications



and receivers

Fundamental Elements

E-GNSS USER ADOPTION

EU PUBLIC BENEFITS

The R&D pillar leverages on H2020 and Fundamental Elements

Supporting a EU

COMPETITIVE
OFFER

of services, applications and receivers



- GSA entrusted by EC with regards to the **implementation of 2014-2015 Work Programme part regarding Horizon 2020**
- **2015 scope of the call:**
 - EGNSS applications
 - Small and Medium Enterprise (SME) based applications
 - Releasing the potential of EGNSS application through international cooperation
 - GNSS awareness raising, capacity building and/or promotion activities, inside or outside of the European Union

Fundamental Elements

- Programme created by the **2013 GNSS Regulation**
- Budget envelope of **100 m€ to be spent between 2014 and 2020**
- **High-level objectives:**
 - Promote the development of Galileo-enabled chipsets, receivers and other associated technologies that will facilitate the adoption of the European GNSS
 - Develop receiver technology addressing user needs in priority market segments
 - Contribute to the economy by creating technologies that can be commercialised by the industry to produce revenues

EGNOS adoption - recent highlights

Aviation



- **271 EGNOS** based procedures (incl 202 LPV), serving 157 airports in 18 European countries
- **10 new regional/business/emergency operators** started retrofit for LPV in 2015
- **2 aviation Call for Proposals** offering **€6 million funding/year** to support **EGNOS** adoption benefiting aerodromes and operators (e.g. Hop/ Air France)

Maritime



- **3rd EMRF workshop on the maritime use of EGNOS will be held in Copenhagen next 30 Sept-1 Oct.** The workshop series main objective is the definition of a new maritime service based on EGNOS v2.
- **12 countries** expressed interest in transmission of **EGNOS corrections via AIS/VDES.**

Rail



- Confirmed interest in **EGNOS performance testing by UNISIG** with whom GSA is in close cooperation to define EGNSS user requirements
- **H2020 test bed to demonstrate EGNOS** solution for rail signalling in low density lines

Surveying & Mapping



- **83% of GNSS models are SBAS enabled**
- **New GSA prize for Young Surveyors** agreed with leading European surveying association (to be awarded during Intergeo, 14-17 Sep)

Agriculture



- More than **70% of European farmers using GNSS** already adopted **EGNOS**

Road



- Road User Charging: The Slovakian tolling system uses **EGNOS** in a 17.500 km network.. Germany announced EGNOS in next generation on board units.
- eCall: Final approval eCall regulation confirmed adoption of **EGNOS** in every new car from April 2018 (c. 11Million car registered in Europe per year)

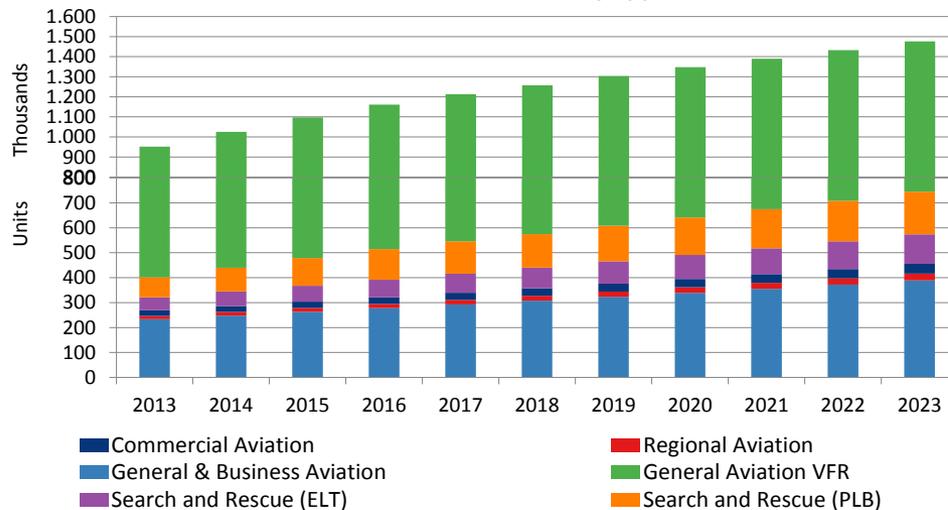
EGNOS in Aviation

Applications

- RNP Approaches down to LPV, LP (soon LPV200) minima
- PinS LPV, SOAP helicopter operations
- Surveillance, e.g. ADS-B
- Support to navigation in other phases of flight
- Airport operations
- UAV guidance



Installed base of GNSS devices by application



Where we want to be by 2020:

- More than 440 LPV planned by 2018
- EGNOS/EGNSS as a key enabler for **Communication, Navigation and Surveillance** for all flight phases

How to get there:

- Partnership with user communities to address user needs
- Funding for procedure/operators (2 calls of 6 million €)
- Contribution to regulation (e.g. PBN in the EATMN, SPI IR, pilot training, non instrument runways)
- New applications development and validation via R&D
- DFMC SBAS receiver prototyping and contribution to standardisation

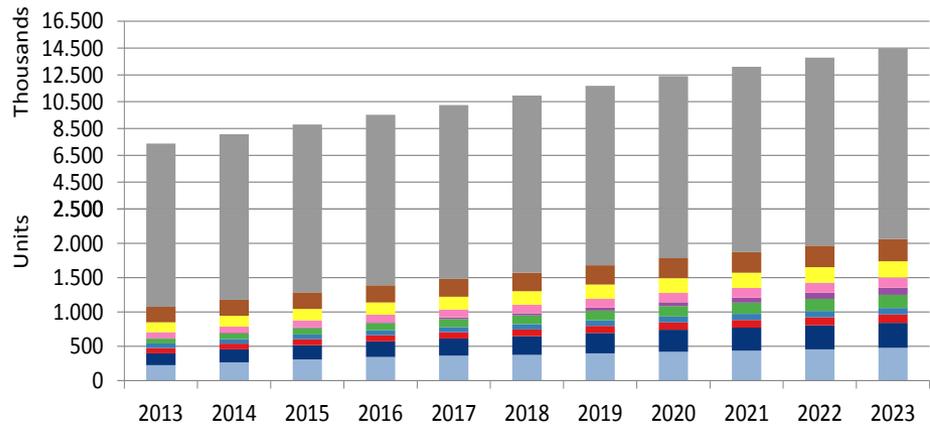
EGNOS in Maritime

Applications

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



Installed base of GNSS devices by application



- Search & Rescue (PLB)
- Search & Rescue (EPIRB)
- Traffic Management
- Homeland Security
- IWW Traffic info
- Ports
- Marine Engineering
- Fishing vessels
- IWW Navigation
- Merchant Navigation
- Recreational navigation

Merchant navigation, traffic management, search and rescue and marine engineering show SOLAS and Non-SOLAS vessels combined.

Where we want to be:

EGNOS adopted by maritime users for safety-related applications. By 2020: EGNOS complementing DGNS infrastructure providing integrity information (AIS, VDES) for inland and coastal waters.

How to get there:

- Workshop series with EMRF to cover: service provision aspects, user needs wrt corrections via AIS/VDES, user requirements for navigation in ports (V3), roadmap for adoption of V2
- Inputs to SDD for maritime service
- Pilot project on corrections via AIS/VDES

Ca. 80% of GNSS receivers models are EGNOS enabled

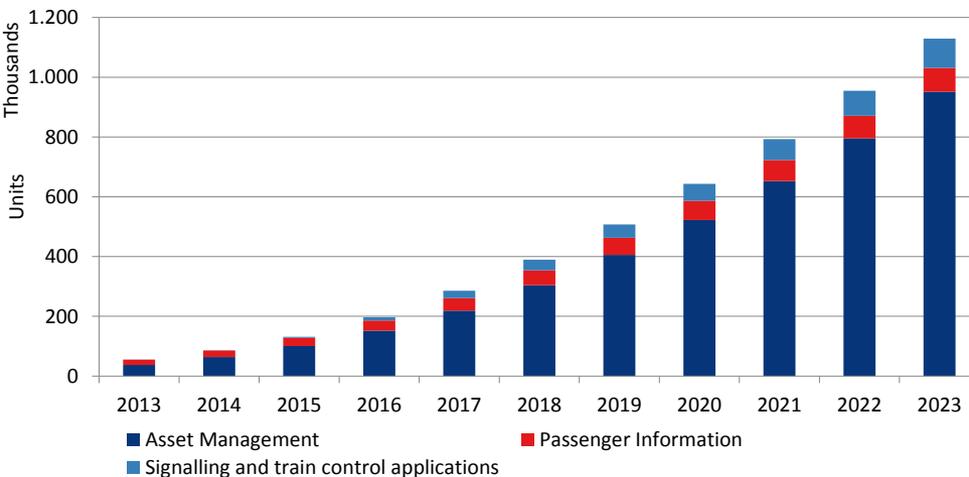
EGNOS in Rail

Applications

- Low density line signalling
- ERTMS (European Rail Traffic Management System)
- Urban Rail signalling
- Asset management
- Passenger information



Installed base of GNSS devices by application



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 and Next Generation Train Control project to define requirements in the railway environment and designing specifications of the virtual balise
- Cooperate with railway associations and EC to foster the role of EGNSS in the evolutions of ERTMS specifications
- Support standardization and certification of EGNOS receivers as a component of the train positioning

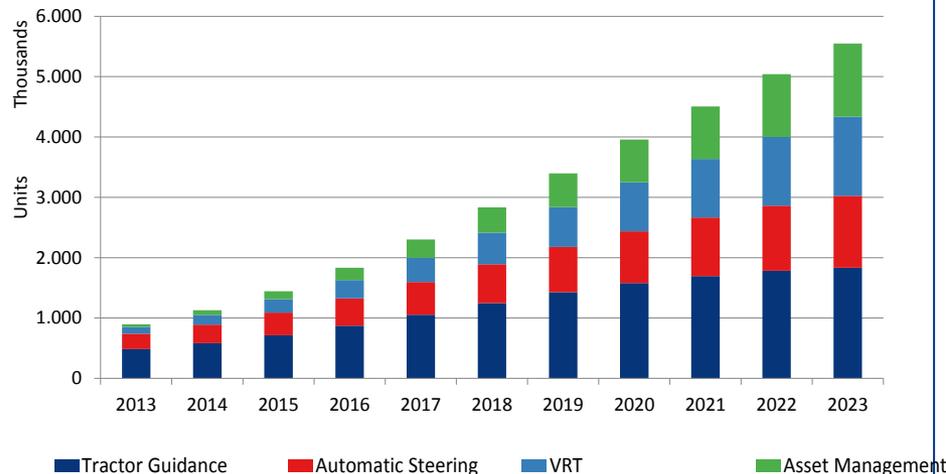
EGNOS in Agriculture

Applications

- Machine guidance
- Automatic steering
- Variable rate applications
- Asset management
- Livestock monitoring



Installed base of GNSS devices by application



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

Getting there by promoting 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

- Leveraging Joint Research Centres to provide inputs for CAP
- Cooperation with machine manufacturers to promote EGNOS
- Cooperation with universities

More than 70% of European GNSS enabled tractors are using EGNOS

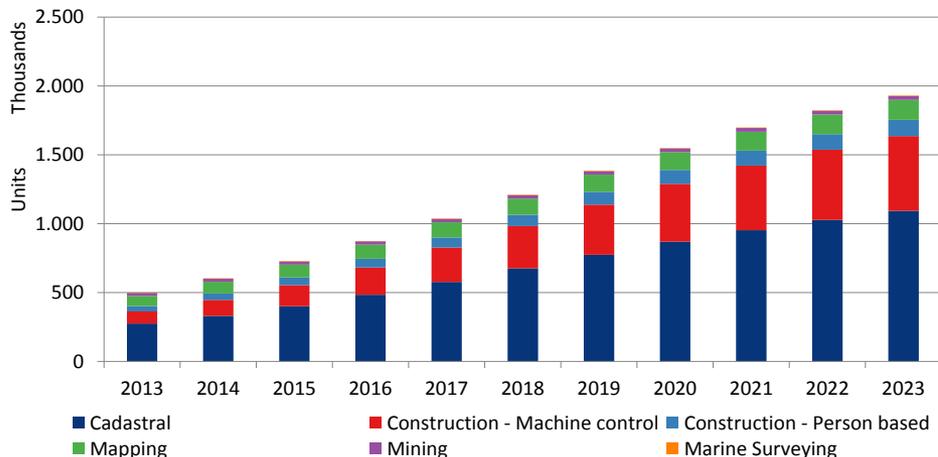
EGNOS in Surveying/mapping

Applications

- Mine survey
- Construction surveying
- Mapping
- Marine surveying
- CAP Field Boundary measurements



Installed base of GNSS devices by application



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

Getting there leveraging EGNOS Benefits:

- Enhanced precision without costly investments help public authorities to manage public infrastructure
- Efficient management of farming land permitting to optimise interventions
- No need of additional communication channels enabling coverage of remote areas with no additional investment

Ongoing actions:

- Leveraging surveying associations (e.g. CLGE) to identify user needs for further take up
- New GSA prize for Young Surveyors
- Build on H2020 R&D activities

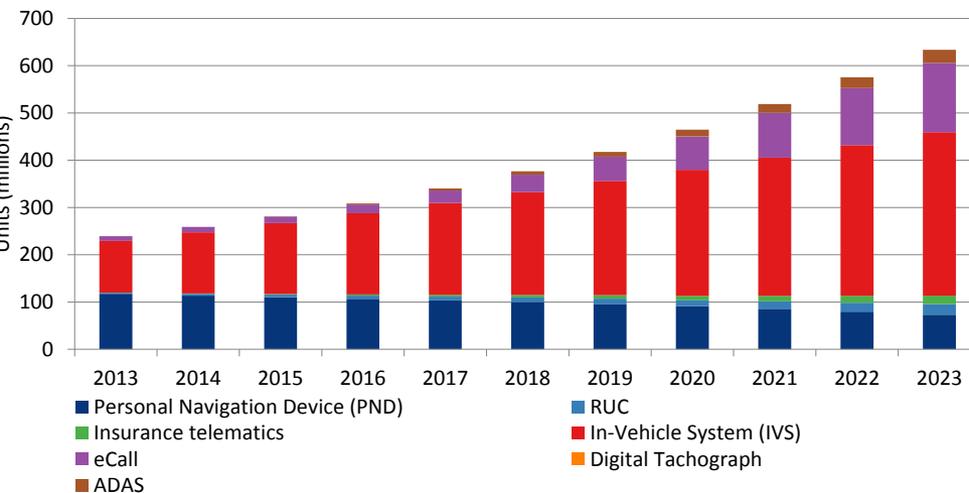
EGNOS in Road

Applications

- eCall
- Road User Charging Systems
- Digital Tacograph
- Tracking of dangerous goods or transport of livestock



Installed base of GNSS devices by application



Where we want to be by 2020:

- EGNOS multipurpose receivers in every vehicle (e.g. RUC, eCall, PAYD)
- EGNOS in every new commercial truck in Europe (Digital Tachograph, dangerous goods)

How to get there:

- Promotion of **EGNOS** in the **EETS** regulation framework
- Facilitate **EGNOS** adoption in the **eCall** regulation delegated acts and in the Digital Tachograph technical annex
- Cooperation/R&D on Connected Cars/ADAS with car makers, OEM, Tier 1 suppliers, decision/ standard makers.

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

THANK YOU FOR YOUR ATTENTION



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