EGNOS MARKET STRATEGY AND ACHIEVEMENTS

EGNOS Service Provision Workshop 2015

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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 of services, applications and receivers**
- COMPETITIVE OFFER
- Fundamental Elements

**EU PUBLIC BENEFITS**
- Road
- Aviation
- Maritime
- Rail
- LBS
- Agriculture
- Mapping
- Governmental

**E-GNSS USER ADOPTION**
The R&D pillar leverages on H2020 and Fundamental Elements

Supporting a EU 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 trough 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

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

202 LPV and 69 ‘EGNOS enabled’ APV Baro in 18 countries
First PinS LPV operational
EGNOS in Maritime

Applications
• Merchant navigation
• Recreational navigation
• Manoeuvring operations
• Traffic Management
• Port operations and Environmental protections

Installed base of GNSS devices by application

Where we want to be:
EGNOS adopted by maritime users for safety-related applications. By 2020: EGNOS complementing DGNSS 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

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

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

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

In the coming years, safety relevant applications (signalling and train control) based on GNSS will be increasingly developed
EGNOS in Agriculture

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

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
Applications

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

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

83% of GNSS receivers models are EGNOS-enabled
Applications

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

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.

Example RUC Slovakia with EGNOS: The largest satellite based toll collection in Europe covers 17,770 km of roads in the Slovak Republic
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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