EGNOS IN THE MARITIME APPLICATION DOMAIN
MARKET SEGMENT UPDATE

EGNOS Service Provision Workshop 2015

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EGNSS applications in the Maritime segment

**General Navigation**
- Ocean waters
- Coastal waters
- Port approach
- Inland waterways
- Restricted waters

**Manoeuvring and Operations in Ports**
- Automatic collision avoidance
- Local Vessel Traffic System

**Traffic Management**
- Shore to ship
- Ship to shore
- Ship to ship

**Homeland Security**
- Immigration control
- Fraud prevention

**Search and Rescue**
- Location of vessels and people in distress

**Recreational Leisure**
- Ocean waters
- Coastal waters
- Port approach
- Restricted waters
### Maritime

**Map of key possible applications**

<table>
<thead>
<tr>
<th>Application</th>
<th>Description</th>
<th>Target Users</th>
<th>Value Proposition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Navigation</strong></td>
<td>• Ocean waters; Coastal waters; Port approach; Inland waterways; Restricted waters (includes fishery)</td>
<td>• Shipping companies</td>
<td>• Improves accuracy and may provide integrity data for all segments of users.</td>
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<tr>
<td><strong>Manoeuvring operations in ports</strong></td>
<td>• Local Vessel Traffic System; Cargo containers management; Automatic collision avoidance</td>
<td>• Vessel owners</td>
<td>• Integrity data at system level is available in the SIS and EDAS.</td>
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<tr>
<td><strong>Traffic Management</strong> (via AIS - Automated Identification Systems)**</td>
<td>• Ship to ship • Ship to shore • Shore to ship</td>
<td>• Fishermen</td>
<td></td>
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<tr>
<td><strong>Homeland security</strong> (via LRIT - Long Range Identification &amp; Tracking)**</td>
<td>• Immigration control • Fraud prevention</td>
<td>• Port authorities</td>
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<tr>
<td><strong>Search and rescue</strong></td>
<td>• Emergency service for Maritime</td>
<td>• Emergency managers</td>
<td></td>
</tr>
<tr>
<td><strong>Recreation and Leisure (Non-regulated)</strong></td>
<td>• Ocean waters • Coastal waters • Port approach • Restricted waters</td>
<td>• Shipping companies</td>
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</tbody>
</table>

**EGNOS**
Maritime
Market Data and Key Trends

**MARKET AND TECHNOLOGY TRENDS**

**Regulated Vessels**
- Multi-constellation GNSS receiver in the centre of proposed IMO E-Navigation concept
- In regulated segment, General Navigation and SAR have the largest share in GNSS receiver shipments
- Manoeuvring operations in ports will get benefit from more accurate position provided by augmentation systems

**Non-regulated Recreational and Leisure segments**
- Recreational and Leisure is by far the largest application in terms of number of GNSS devices, but it is very fragmented and difficult to reach
Overall E-GNSS adoption depends on four main factors

**Political -> Regulation**

Current Status:
No IMO resolution regarding the EGNOS recognition as part as of WWRNS.

Multi-SBAS systems has to be compliant:
- IMO Resolution A.915 on Maritime Policy for Future GNSS
- IMO Resolution A.1046 World Wide Radionavigation Systems

**Economical -> Ratio price/new functions**

- In regulated segment there is the tendency to buy the cheapest devices compliant with regulations
- In leisure segment the main market drivers are first technology and then price

**Technological -> Standards**

Current Status:
- IMO resolution MSC 401(95): Performance Standards for multisystem shipborne radionavigation receivers, which includes SBAS.
- No IEC publication regarding EGNOS receiver equipment tests.
- No RTCM minimum performance standards for EGNOS for maritime use

**Social -> Legacy Systems**

- DGNSS- IALA radiobeacon is the internationally accepted means of providing differential GNSS corrections and integrity information to maritime users
Maritime Market Development Strategy

Where we want to be

Regulated
- EGNOS adopted by maritime users for safety-related applications
- EGNOS complementing DGNSS infrastructure providing integrity information for coastal and inland waters (by 2020).

Non-Regulated
- EGNOS enabled in every maritime receiver sold in Europe

How to get there

Regulated
- Workshop series with EMRF to cover:
  - Roadmap of adoption of EGNOS v2
  - User’s requirements for navigation in ports
  - Service provision aspects
  - Provide inputs for Maritime Service Definition Documents (EGNOS SIS and EDAS)
- Pilot project for the transmission of EGNOS corrections via AIS/VDES and IALA beacons (coverage)
- Contribute to the preparation of IALA guidelines on the maritime use of SBAS
- Perform cost-benefit analysis of DGNSS infrastructure optimisation using EGNOS
- Contribute to the preparation of a guideline for Rx manufacturers for the SIS service
- Support SBAS standardisation processes at RTCM and IEC
- Support the recognition of EGNOS at IMO as part of the WWRNS

Non-Regulated
- Demonstrate EGNOS benefits for users and main receiver manufacturers/dealers
2015 action plan for EGNOS Service Provider

**Regulated**
- Perform cost-benefit analysis of optimisation of DGNSS network using EGNOS
- Analyses of EGNOS v2 performances for its use in maritime using SBAS integrity
- Analysis of users’ requirements for navigation in ports

**Unregulated Leisure**
- Guidelines on EGNOS transmission via AIS for Inland waterways, coastal waters and ports
- Guidelines on EGNOS transmission via IALA beacons for coastal waters

**GENERAL NAVIGATION**
- Provide support in communicating EGNOS benefits to users and receiver manufacturers/dealers

**EDAS**
- Analyses of EGNOS v2 performances for its use in maritime using SBAS integrity
- Analysis of users’ requirements for navigation in ports

**Market Uptake**
THANK YOU FOR YOUR ATTENTION

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