The General Lighthouse Authorities’ Radio Navigation Plan

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The General Lighthouse Authorities

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The Changing Service Provision Environment
The GLAs’ service provision is coming under increasing pressure

- More resistance to paying for services
- More litigious environment
- More demanding user requirements
The changing service provision environment

- Larger & faster vessels
- Congestion at pinch-points
- Trend to one/two man bridges
- Ubiquity of GPS and waypoint navigation
- Concern over ability to revert from electronic to traditional techniques
- In some cases safety may worsen
e-Navigation
e-Navigation – definition

- e-Navigation is the harmonised collection, integration, exchange and presentation of maritime information onboard and ashore by electronic means to enhance berth to berth navigation and related services, for safety and security at sea and protection of the marine environment.
## Benefits

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Government</th>
<th>Shipowner</th>
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<tbody>
<tr>
<td>Safety</td>
<td>Reductions in loss of life and injury caused by grounding</td>
<td>Improved information clarity on the bridge leading to better decision making</td>
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<tr>
<td>Security</td>
<td>Enhanced shore-based surveillance based on AIS together with radar</td>
<td>Enhanced on-board situational awareness</td>
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<tr>
<td>Environment</td>
<td>Reduced risk of pollution caused by grounding or collisions</td>
<td>Improved passage planning optimising voyage efficiency</td>
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A 20-year change process

- Radionavigation systems are becoming much more predominant in the service mix of Aids to Navigation that we provide

- Strong business case
  - Advance the benefits and defer the costs

- Complexity vs flexibility
  - Highly-regulated - mass market

- Defined programme to build confidence
  - Managing introduction of new services
  - Managing investment by all parties
The GLA Radionavigation Plan
Taking ownership

Our GRNP will be launched at TimeNav07 in Geneva
Process

- Workshop, 7-9 February 2006
  - Invited speakers
  - Requirements capture
  - Roadmapping extreme scenarios
  - Determine and “optimised” scenario
  - Produce an optimised plan
  - SWOT analysis for critical steps
  - Propose Actions

- Production of draft plan with two review points
  - RNAV Cttee meetings in May and August

- Delivery of draft plan to Chief Execs in October 2006
GRNP Structure

- Introduction
- The changing service provision environment
  - institutional, regulatory, commercial, operational, technical and user
- The GLAs’ radionavigation plan
  - GPS, Galileo, DGNSS, AIS, eLoran & Racons
- Delivering the plan
  - Implementation and planning for change
- Our commitment to the user
Key characteristics

- Adapting in the face of a rapidly changing environment
- Optimising our service provision to provide flexibility
- Allowing us to meet the needs of different users
- Collaborating extensively
- A physical aids to navigation backbone will always be required as part of a balanced approach to the aids to navigation service mix
GPS and Galileo – stand-alone services beyond the GLAs’ control

- **GPS**
  - Encourage the EU to work with US GPS authorities to ensure continued availability
  - Continue to assess new GPS services to ensure they meet the needs of the mariner
  - Encourage and support IMOs acceptance of new GPS services into the WWRNS

- **Galileo**
  - Assess new GPS services to ensure they meet the needs of the mariner
  - Encourage and support IMOs acceptance of the Galileo Open Service (and others appropriate) into the WWRNS
  - Continue GLA involvement in the development of GPS/Galileo standards through IMO, IEC and ITU

AIS & Racons – services under our control

**AIS**
- Encourage through IMO the establishment of AIS as an approved AtoN
- Investigate the provision of virtual AtoNs and, in doing so, review the local and general provision of physical AtoNs
- Continue GLA involvement in the development of relevant standards through IALA, IEC, ITU
- Acquire and process AIS traffic data to develop an improved picture of ship movements

**Racons**
- Continue to monitor developments in radar technology and support specific studies or trials as required
- Investigate and determine the implications of IMO removing the need for backwards compatibility to S-band racons
- Continue to liaise with appropriate national and international bodies and Racon manufacturers and required, to ensure that the mariners’ requirements are met
eLoran – research activity aiming to mitigate GNSS vulnerability

- Work with our international partners to ensure that eLoran remains operational within Europe and the US in the short term
- Work to identify appropriate long-term institutional arrangements for eLoran in Europe
- Be involved in the development of eLoran standards
- Work to secure long-term funding for eLoran services
- Extend the Loran trials at Rugby to March 2010

- Encourage the development of user equipment
- Continue our ongoing programme of work and publish the results
- Encourage and support the realisation of the ERNP through an EC communication and the implementation of recommendations pertaining to Loran
- Continue to seek wider support from other user segments and public sector domains to share future costs on an equitable basis
The Way Ahead
<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
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<tr>
<td>2008</td>
<td>Recapitalise GLA DGPS system &amp; deploy AIS as an AtoN</td>
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<td>2011</td>
<td>First fully-operational GLA eLoran services</td>
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<td>2012</td>
<td>Introduce modernised GPS, Galileo and GLONASS</td>
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<tr>
<td>2013</td>
<td>First fully-operational Virtual AtoNs service</td>
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<td>2014</td>
<td>New GLA e-Navigation control centres</td>
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<tr>
<td>2015</td>
<td>e-Navigation v1.0</td>
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<td>2025</td>
<td>e-Navigation v2.0</td>
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The General Lighthouse Authorities

Delivering a reliable, efficient and cost-effective AtoN service for the benefit and safety of all mariners