Dublin Bay Digital Diamond e-Navigation Demonstrator

e-Navigation Underway 2017

Deirdre Lane MSc MNI Master Mariner
Navigation Policy, Commissioners of Irish Lights
Dublin Bay Digital Diamond (DBDD)

- Engage with the user community in the development of an e-Navigation demonstrator project
- Located in Dublin Bay and co-ordinated by Irish Lights
- Use existing Irish Lights and partner organisation infrastructure to provide platforms for the core communications network required
- Modest demonstrator that could show users across the maritime sector the practical benefits they could expect from a future e-Navigation environment
Develop & demonstrate e-Nav services by:

- Improve safety & efficiency of maritime transport
- Deliver stakeholder value
- Encourage optimal use of the services provided
- Effective communication of the potential of e-Navigation to the maritime community and public
A number of stakeholder meetings were held to ensure user focussed outcomes:

- DATA DATA and more DATA
- Met/ Ocean Data
- Automatic exchange of data e.g. Safeseas
- Camera looking at Dublin Bay anchorage
- Wind speed and direction read out from a height of approx. 20 m (RO RO vessel)
Technical Advisory Committee (TAC)

Criteria for membership was the ability to deliver benefit to and derive benefit from the project

- Advise on the technical feasibility of tests
- Advise on resource requirements, environmental issues, and project outputs
- Advise on strategies and recommendations for action
- Ensure user focussed outcomes across the sector
TAC Representatives:

- Ports
- Safety
- Leisure
- Shipping
- Technology
Dublin Port Pilot: “the weather data is of significant help for choosing where and on what course to board an inbound vessel in the bay”

- Wind Speed
- Wind Direction
- Wave Height
- Wave Period

Oxygen, salinity and temperature sensor
Wi-Fi Trial

- Wi-Fi for data transfer between the four nodes
- Plenty of signal strength but too much interference from other Wi-Fi nodes
Stereoscopic Positioning

- 2 photos of the same object/view taken a few meters apart compared with real-time onboard camera images and processed for a match at a particular bearing

- Images sent to NUIM for processing

- Accuracy poor

- The performance of this system is highly dependent on quality and spread of land marks
Spar Buoy Trial

e-Nav context use of sensors on constant tension mooring buoys

Finish Company Meritaito

- Location
- Wave Height
- Water Temp
- Sea How Web Portal
Demonstrations conducted with various types of cameras, including thermal imaging camera
- Marine Environment
- Accessibility
- Good Vantage point
- Bosch MIC IP dynamic 7000 HD camera mounted at East Pier Lighthouse
- Multiple remote operators
- Initial firewall issues
System monitors AIS message Types 1, 2 and 3 to determine if a vessel has entered/exited a pre-defined area, an SMS message is then forwarded to the relevant contact.

- Dublin Bay Alerts -
  Ship Approaching: Vega Stockholm
  MMSI: 636090978
  Heading: 95
  Time: 14/11/2014 08:16:37
  All data in this SMS is to be taken as IS
  08:20, Fri via SMS

- Dublin Bay Alerts -
  Ship Approaching: Katharina B
  MMSI: 304304000
  Heading: 344
  Time: 18/11/2014 07:52:26
  All data in this SMS is to be taken as IS
All stated they were aware of e-Navigation but thought that ECDIS meant e-Navigation

Lack of standardisation of equipment

Poor procedures in the event of loss of GNSS

Balance of information is good

Radar still remains an important and reliable tool for safe navigation

Improvement/ Advancement in technology is good
- Publication and distribution of e-Nav News
- Engaging with the maritime community
What We Learned!

- Precise outputs and their timing changed based on partner input and available technology
- Learned more about sensors, their correct mounting and maintenance
- Safety & efficiency of maritime transport could be enhanced by the “AIS to text” tool and elements of this tool could be expanded into MSPs in the future
- The limitations associated with constraining a test bed to a Geographic area
- The value of an effective TAC with good TOR
- The value of pro-actively engaging with stakeholders
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deirdre.lane@irishlights.ie