CORPORATE

SECURITY

TEAMWORK

EVENTS

01
Issue

e-Navigation News

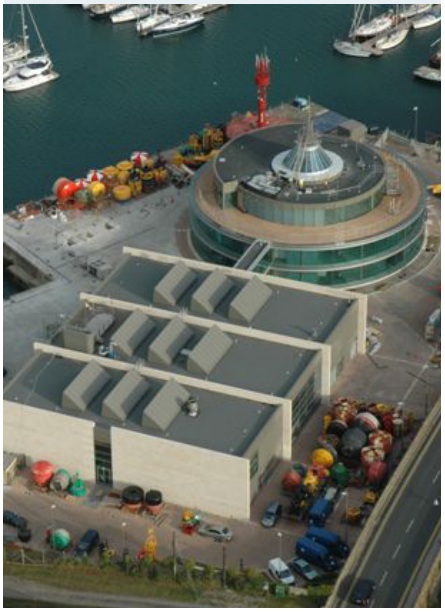
What is e-Navigation?

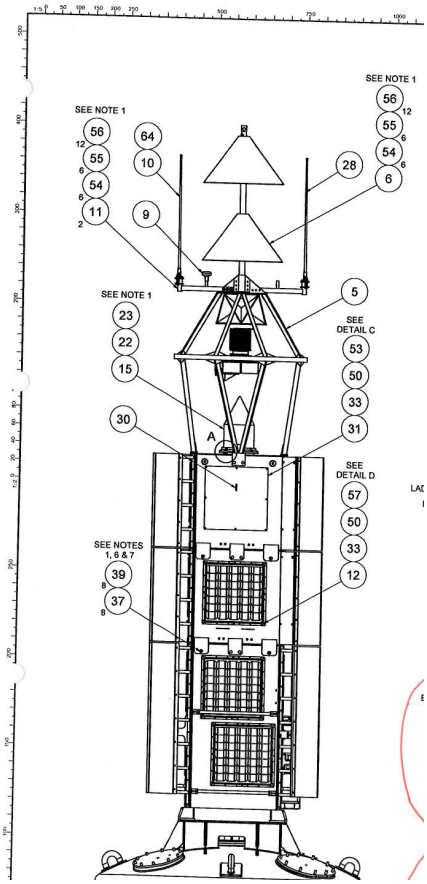
Dublin Bay Digital Diamond

Commissioners of
Irish Lights

Febuary 2014
www.cil.ie
+353 1 2715500

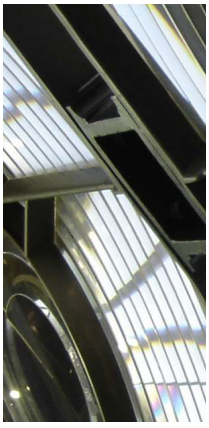
> e-Navigation is the harmonised collection, integration, exchange, presentation and analysis of maritime information onboard and ashore by electronic means to enhance berth to berth navigation and related services, for safety and security at sea and protection of the marine environment

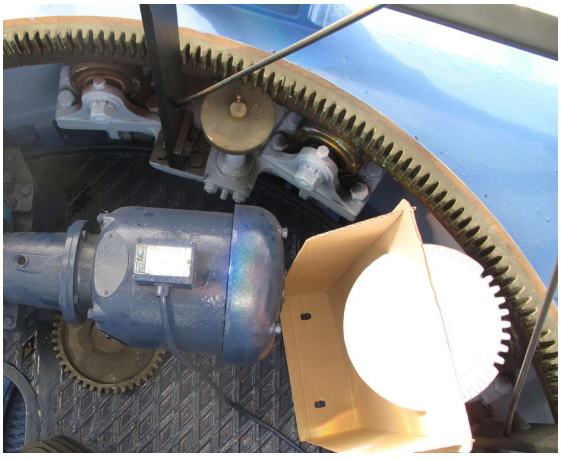




CONTENTS

E-NAVIGATION NEWS





A WELCOME TO E-NAVIGATION

This is the first in a series of newsletters aimed at informing the maritime community of the CIL e-Navigation Dublin Bay Digital Diamond demonstrator project as well as gathering feedback on user experience and requirements.

B WHAT IS E-NAVIGATION?

Learn what e-Navigation is, who uses it and why its important to the safety of all mariners in the 21st Century.

C TRADITIONAL NAVIGATION

Properly implemented e-Navigation should enhance the best practices of traditional navigation by using the human and machine decision making processes to complement one another.

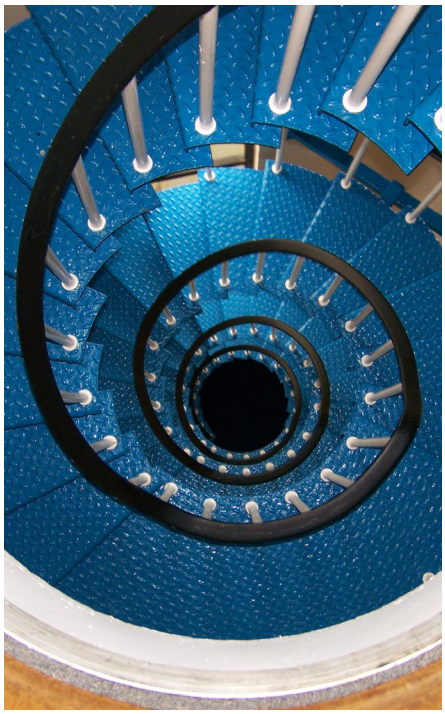
D E-NAVIGATION TESTBED

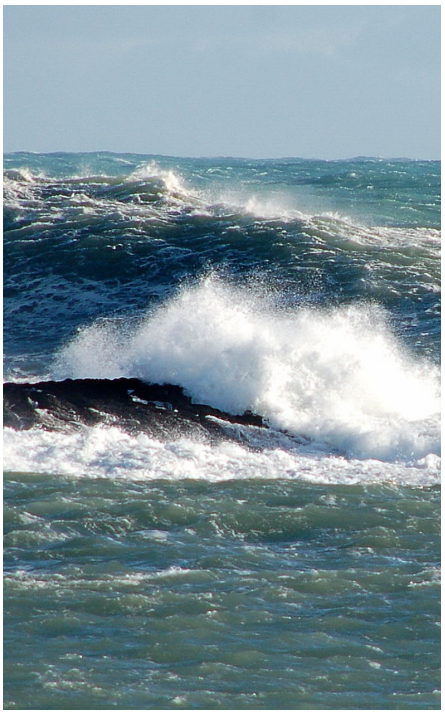
Test-beds have been set up in order to demonstrate e-navigation applications.Test-beds or demonstrator projects will allow for early implementation and user experience while the system itself is still under development.

E DUBLIN BAY DIGITAL DIAMOND

The Dublin Bay Digital Diamond (DBDD) is an e-Navigation demonstrator project for the Dublin Bay area, the purpose of which is to provide an opportunity for users across the maritime sector to explore the potential of e-Navigation services.

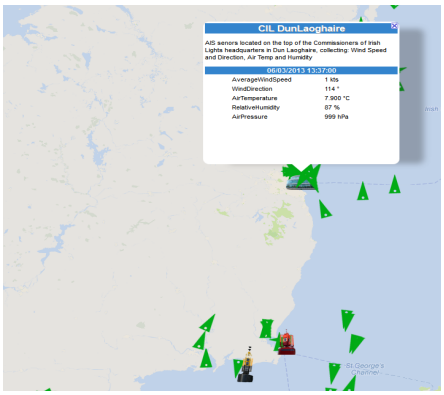
> A clear and compelling need to equip the master of a vessel and those ashore responsible for the safety of shipping with modern, proven tools to make maritime navigation and communications more reliable and user friendly and thereby reducing errors





WHAT IS E-NAV?

FACTS



The International Maritime Organisation has defined e-Navigation as:

The harmonised collection, integration, exchange, presentation and analysis of maritime information on board 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.

We can further simplify this by describing e-Navigation as the standardisation/integration of maritime communications, navigation equipment and procedures.

Because of the conceptual nature of e-Navigation many Mariners are unclear as to what exactly it means to them. This is understandable and those who are at the forefront of research in this area find it hard to describe how it will all come together. It is important to remember that e-Navigation is an evolutionary and dynamic concept that continues to evolve as user needs and emerging technologies arise.

New technology has had a major impact on our lives, and the marine world is no different but because of the safety and environmental issues surrounding navigation and its global nature it is important that technological advances are coordinated in terms of systems and equipment operability and standardisation of procedures. Unlike the aviation industry where flight systems, equipment and procedures are highly

standardised and regulated, marine navigation systems are as numerous and diverse as the number of shipping companies operating ships.

The e-Navigation concept is not limited to the navigator and intership communications. Ship/shore voice and data communions will mean that it will affect the entire maritime industry, including port and national authorities as well as ships agents and equipment manufactures. Training institutions will also play a vital role in ensuring relevant competency is achieved and maintained.

From the standardisation of bridge equipment to the regulation of seaborne transport around the world e-Navigation will:

Reduce accidents and environmental incidents through improved situational and traffic awareness both afloat and ashore.

Contribute to the national security by delivering vital information in support of the national maritime domain.

Provide reliable and relevant information in a reliable manner.

Efficient transport by using optimum routes and speeds and integration of systems already in place.

e-Navigation is not intended for just big ships with a huge array of electronic navigation aids, it will be a scalable system across all vessel sizes and types and all mariners will be affected as the systems are developed and introduced in order to improve safety for the entire maritime community.

Is this the end of Traditional Navigation?

Properly implemented e-Navigation should enhance the best practices of traditional navigation by using the human and machine decision making processes to complement one another. e-Navigation should not alter the responsibilities of the navigator for the safe navigation of the vessel.

It is clear that Aids to Navigation (AtoN) will have their part to play in the e-Navigation project and like many other AtoN authorities around the world the Commissioners of Irish Lights are taking a leading role in coordinating a test-bed/systems demonstrator in our own area.

DBDD TEST BED

SHORT ARTICLE

Test-beds have been set up in order to demonstrate e-navigation applications. Test-beds or demonstrator projects will allow for early implementation and user experience while the system itself is still under development. Demonstrator projects will also allow early detection of areas of improvement or defects in intended system functionality. It is important that the implementation and outcomes of these test-beds are harmonized if the e-navigation solutions that emerge are to have general application.

What will we be testing?

Wi-Fi coverage over Dublin Bay

Feasibility of Ranging Mode using AIS Base stations

A Smart Phone App that transmits AIS data via Wi-Fi

Camera coverage of the Dublin Bay anchorage/ approach channel

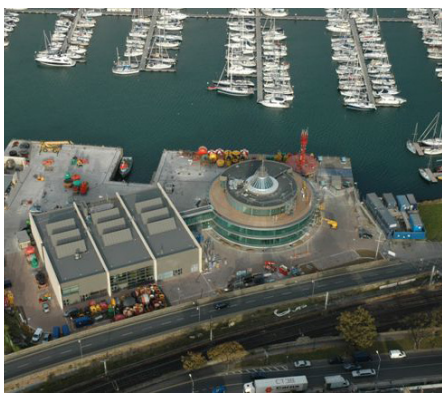
Virtual AIS AtoN marking the Vessel Traffic Services gates or other points for special arrivals or events

Virtual AIS AtoN to mark Radio Navigation Warnings in the test area

Met/Hydro sensors on the Dublin Bay Buoy, providing wind /current /wave height data for the pilot boarding area

Port traffic recorder that will record traffic passing North Bull and Poolbeg inbound

Wind Speed and Direction read out at a height of 20 metres from Kish lighthouse



DUBLIN BAY DIGITAL DIAMOND

FEATURE

The Dublin Bay Digital Diamond (DBDD) is an e-Navigation demonstrator project for the Dublin Bay area, the purpose of which is to provide an opportunity for users across the maritime sector to explore the potential of e-Navigation services.

> "better integration of ship and shore-based systems; leading to better utilisation of all human resources;

The project will take advantage of existing CIL and partner organisation infrastructure to provide platforms for the core communications network required. The proposed primary stations are shown on the dedicated DBDD site on our website: http://www.cil.ie/technology-data-services/digital-diamond.aspx.
The main sites are at Kish Lighthouse, Baily Lighthouse, Dublin Port and CIL Dun Laoghaire. These locations can provide effective digital communications coverage across the Dublin Bay and its approaches.

The primary objective of the project is to demonstrate and develop e-Navigation services that improve the safety and efficiency of maritime transport.

The precise outputs and their timing may change as the project develops, based on partner input and available technology. However, it is considered that there will be three phases to the project with short, medium and long term deliverables.

A key objective throughout the project will be communication of the potential of e-Navigation to the maritime community and the public so as to encourage optimal use of the services provided.

PHASE ONE

of the project will concentrate on engaging the maritime community and demonstrating the benefits of e-Navigation across the maritime sector. At the end of Phase One it is envisaged that the project will have established a firm user base, identified potential key sectoral requirements and delivered the identified demonstrator services.

PHASE TWO

of the project will build on the earlier work to deliver some of the more challenging aspects of the communications network and more advanced services. At the end of Phase Two it is envisaged that the systems will be capable of providing broad band coverage across the target area and that demonstrators for more advanced user services will be available to the identified partner groups such as shipping companies, regulators, ship agents, forwarders, shippers, receivers and safety and environment interests.

PHASE THREE

of the project will be in the area of longer term follow on benefits.

If you wish to see how e-Navigation is progressing around the world in real time the IALA e-Navigation web portal is an excellent source of information including updates on test beds, portrayal examples, demonstration software and IALA conferences on the topic. http://www.e-navigation.net/