

**Title** *Efficient, Safe and Sustainable Traffic at Sea*  
**Acronym** *EfficienSea*

Document No. D\_WP4

Document Access: Restricted

***Recommendations on e-Navigation***

**Deliverable No. ???**

***Contract No. 013***



## DOCUMENT STATUS

### Authors

<i>Name</i>	<i>Organisation</i>
Thomas Christensen	DMA

### Reviewers

<i>Name</i>	<i>Organisation</i>
Omar Frits Eriksson	DMA

### Approval of report

<i>Name</i>	<i>Organisation</i>	<i>Signature</i>	<i>Date</i>
Morten Brix Laursen	DMA		

### Document History

<i>Revision</i>	<i>Date</i>	<i>Organisation</i>	<i>Initials</i>	<i>Revised pages</i>	<i>Short description of changes</i>

## Introduction

The purpose of this document is to give recommendations regarding e-Navigation based on the results and lessons learned from the EfficienSea project. The focus will be to give recommendations regarding future project with a significant e-Navigation component.

## Results

The major results from WP4 has been the following:

- A prototype e-Navigation infrastructure

- A number of prototype e-Navigation services

- A test bed consisting of vessels and shore user sites equipped with e-Navigation prototypes

- Results for testing the services live and in simulators

The infrastructure and services is mainly comprised of open source software, which is available for anyone to use and/or further develop.

## Recommendations

### Open source software

The comprehensive open source software suite from the EfficienSea project constitutes a valuable asset that can assist the overall e-Navigation process on its way, IF USED! So one recommendation will be to promote the future use and further development of this software suite, either within the framework of new projects, or in other contexts. The software can be utilized in two principal ways:

- The software can be used as is (or with minor modifications) in order to test the existing services in new regions of the world. The services has been tested in the Baltic sea region in

EfficienSea, but it since e-Navigation services should be global, it would be of great value to test the same services in other regions of the world.

The software can of course also be used as a starting platform for others to develop new services without having to start from scratch. The extra benefit here is that such new services could then be provided to the existing users of the platform. Thus, everybody using the platform could benefit from what anyone else is developing on it.

So, it is recommended to use the software suite in the above mentioned ways, and to promote this. Furthermore, it is recommended that the software suite is being promoted as a possible reference application for e-Navigation. In other areas such as AIS, a need for reference implementation has been identified. Sometimes the existing standards are not sufficiently unambiguous, and therefore the presence of an agreed reference implementation could be of great value.

## The test bed

The established test bed mainly comprising of a number of vessels equipped to enable the use of the prototype services also constitutes a valuable asset that should be sought reused rather than dismantled. In time of writing, this is actually happening as the EfficienSea test bed is being reused in the North Sea ACCSEAS project and the Monalisa project. In the ACCSEAS project, the test bed will be expanded to include vessels in the North Sea.

## The e-Navigation underway conference

The e-Navigation underway conference which was held twice during the EfficienSea project turned out to be a great success. It seemed there was a need for such an event on a global scale. There were a significant number of people attending with a large geographical diversity (~140 participants, ~20 countries, 4 continents). Furthermore most of the key people from the important organisations attended. In the first two years, the event was organised by EfficienSea and IALA.

The recommendation here, is to continue this annual conference, as it seems to be an important contribution to the overall e-Navigation process.

In time of writing, this is happening, at least for 2013, as DMA and IALA is planning a conference that year.

## e-Navigation forum, Baltic Sea Region

This was established during the EfficienSea project, and in line with the original aim of the project, it is of course recommended to continue this forum, and to seek inclusion of the non-EfficienSea BSR countries (Germany, Latvia, Lithuania and Russia).