

## **Will e-Navigation help the officer of the watch manage information?**

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There is an ever-increasing amount of information to be managed by the officer of the watch onboard today's ships. Some of this information may be the same information from different sources, and possibly conflicting, as in the case of occasional mismatches between AIS position reports and radar information. The officer of the watch often has to assess and prioritise information, noting its source, before being able to make decisions relating to navigation safety. This unsatisfactory situation is partly attributable to the often low levels of integration between navigation instruments and other equipment.

A question that should be asked of e-Navigation is: *'Will e-Navigation provide any benefits to the officer of the watch to help address the current information management situation?'* If e-Navigation is to succeed, then the answer needs to be 'yes', but how can the industry have confidence in this when we know that the effort needed to develop e-Navigation will be enormous; the scope is vast and the process of development must involve many stakeholders working in close cooperation and through various international fora.

Several positive indications which provide hope have emerged from the International Maritime Organization (IMO) in recent years, either directly or indirectly related to e-Navigation.

The first indication is the IMO's definition of e-Navigation, which states that *'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'*. Whilst this is a wordy definition, it is clear that e-Navigation is meant to be all about the management of maritime information, and this is a very good starting point.

The second positive indication is the IMO's recent decision to approve the mandatory carriage requirements for Electronic Chart Display Information Systems (ECDIS). ECDIS is an information management system in its own right and it will do much to improve navigation safety. However, after ECDIS becomes more widely adopted, it is certain that we are likely to only hear about the incidents to which ECDIS contributed. We are not likely to hear about potential incidents that might otherwise have occurred if it were not for ECDIS.

ECDIS as a technology has been around since the 1980s, and hence ECDIS is relatively ordinary information technology by today's standards. However, a well integrated ECDIS with the capability to assimilate other sensor information, such as from radar and AIS, has the potential to greatly improve the way that information is presented to the officer of the watch. A warning though - in many cases the chart information displayed on ECDIS will be the same information that exists today on paper charts. Old or minimal survey information from paper charts can be brought into ECDIS through the conversion of paper charts into Electronic Navigational Charts (ENCs). Mariners must continue to exercise the same cautions with ECDIS that they do today with paper charts.

The third positive indication is the work that the IMO is doing in other areas, such as with the improvement of guidelines for Integrated Navigation Systems, and Integrated Bridge Systems. There is also a growing acceptance of the role of shore organisations in general,

and Vessel Traffic Services (VTS) in particular, in contributing to the safe berth to berth movement of vessels and their cargoes around the globe. Some of the most impressive maritime information system developments are taking place in the realm of VTS. These involve the collection, management and display of multiple sensor inputs in a coherent, user friendly presentation.

In VTS and other shore-based organisations there are some significant developments taking place in relation to 'maritime domain awareness'. This approach is building on the integration of sensor information with underlying intelligence, including AIS information from terrestrial receivers, long range identification and tracking information and additional ship and waterway related information, and feeding the results into various analysis tools. Trials are also being carried out on the inclusion of AIS information from satellite borne receivers, and the level of maritime domain awareness that can result from all of this is remarkable.

In summary the indicators surrounding the development of e-Navigation are pointing toward a hope that e-Navigation will provide many benefits to the officer of the watch which will result from the improved management of maritime information at sea and ashore. If an old information technology such as ECDIS can bring about definite improvements in navigation information management, then we should expect that new generation information system technology, being applied through a phased introduction of e-Navigation, will significantly improve the officer of the watch's ability to make consistently good navigation safety decisions.

Paramount now, is that the international community get behind this initiative and that all those working on the development of e-Navigation in the various international fora do all they can to ensure that e-Navigation will be 'compelling' for ship owners. In essence, e-Navigation should be something that the industry needs and wants.