

Standards and legislation bulletin – December 2009



A message from the editors

This bulletin reports on the progress of the EU project Flagship in the areas of legislation, standards and other activities in related domains. More information about Flagship can be obtained from its web site at www.flagship.be or from one of the contact persons at the last page.

Please note that as for most of the work in the international standards organisations, this is performed by individual experts or national representatives. Thus, the work reported on here has normally been done by members of the relevant committees and presented as input to ongoing processes. Flagship, as a project, is not participating directly – neither in IMO nor in IEC or ISO.

Paper on “Perceptions of technology at sea”

In 2008, Flagship did a study on seafarer’s perception of new technology used onboard ships. The study was an attempt to explore current perceptions towards technology at sea and to evaluate the extent to which concerns raised in the literature are reflected in seafarer opinion. The focus in the study was upon ICT, reflecting both the aims of Flagship and a key direction in which the seafaring industry is heading. In the maritime domain, ICT refers primarily to systems that are designed to enhance the environmental and contextual perception of the seafarer. Examples would therefore include radar, satellite navigation and equipment to aid the remote management and monitoring of engine room equipment. By focusing on ICT, it was possible to look at an area both of significant development in the shipping world and one of comparability with other industries. Recently a paper was published in the “Ergonomics” journal, presenting some of the results. The paper is fully based on the Flagship study, but focuses on the UK seafarers’ responses. Briefly, from the conclusions of the article we would like to quote:

Where Lützhöft (2004) titles her thesis, ‘The technology is great when it works’, the results from the current study would suggest an equally appropriate title would be, ‘The technology is great when we know how to use it’. [...] Interaction with technology requires adaptation and training on the part of the human operator, but also technology that is grounded in user-centred design principles. Evidence suggests an increase in standardisation would benefit the industry as a whole, but caution should be raised about innovation suffering as a consequence. The concept of an ‘S-mode’, currently in discussion at the International Maritime Organisation, would appear to be a constructive way forward.¹

The conclusion is interesting although perhaps not surprising. It certainly points to the need for more standardised operator interfaces, where possible, and more specific training where standards are not available. The work the paper is based on was performed in Flagship’s subproject D2.

¹ Allen, Paul(2009) ‘Perceptions of technology at sea amongst British seafaring officers’ ,Ergonomics, 52:10, 1206 — 1214.

Intermanager – Shipping KPI

Another interesting, but different area is “Shipping KPI”. The development of Shipping KPI has been led by InterManager² with the goal of developing a *basis for performance measurement in the shipping industry that would be acceptable to all. The three year project delivered a complete proposal for a multi-level system of performance measurement in shipping, including base Performance Indications (PIs), Key Performance Indicators and top Shipping Performance Indices (SPIs): the results of the study were presented at InterManager’s Annual General Meeting in Singapore last November and are now accessible online at www.shipping-kpi.com.*³

Shipping KPI is also interesting because it points to the new proposal for developing an “e-Maritime” framework, where a more committed cooperation between public and private parties is a core component. The development of open performance measurements in shipping will provide a higher degree of transparency which is a key component in realizing improved trust between actors and more efficient cooperation forms.

Flagship will not endorse nor criticise the specific Shipping KPI developments, but rather point to this initiative as another way to make better use of the information that is already available in ships’ and ship managers’ data systems. Neither has Flagship been a direct partner in the development of this initiative, but results from Flagship’s research work have been used as basis both for some of the KPI’s and for the tools used to collect and present data. This does in particular relate to engine efficiency and environmental indexes and presentation results which have been produced in subprojects B1 and A2.

IMO – e-Navigation Implementation

IMO MSC approved the “Strategy for the development and implementation of e-navigation” on its 85th session in October 2008 and also approved the framework for the implementation of e-Navigation. This framework stipulates the start of implementation of e-Navigation in 2012. It is clear that large parts of the IMO e-Navigation strategy overlap with Flagship objectives, and Flagship members observe the developments in this area with great interest.

Flagship is in these days completing an analysis of the need for digital ship-shore communication, including the different failure modes that the possible carriers have. Satellite is obviously necessary at deep sea, but in coastal areas, other carriers may be more suitable. The International telecommunication Union (ITU) is responsible for coordination of frequency use in the world and they are currently looking into this issue. The next possibility for doing something in the frequency area is the next World Radio Conference in 2012 (WRC 2012). ITU will need input at the latest in the summer of 2010 to prepare for the conference and Flagship will contribute its input to this work. However, frequency allocation is to large degree a political matter, where IMO obviously plays a central role. This is also discussed in the next section.

A correspondence group was established by IMO FAL (facilitation Committee) at its meeting in early 2009 to develop guidelines for a Single Window. This group was led by Brazil. Flagship members signed up to this work through the Norwegian representation to the group, but unfortunately, too few others volunteered and the work was put on hold until the next FAL meeting in 2010 (FAL 36, tentatively April 2010). However, at the latest ISO TC8 plenary meeting (see later) it was discussed if ISO should provide a draft paper on the issue, with input from Flagship. The time frame is restricted, but it may be possible to get some input also from other projects so there is still a possibility that something will be produced.

The main interest for Flagship is the small and medium ports where different electronic clearance systems are now being developed. Although many use XML (Extensible Markup Language) as a basis, there are still

² <http://www.intermanager.org>

³ Intermanager press releases 8 and 25 June 2009

significant differences in how the messages are formatted and how the data is represented. This can become a significant problem for certain types of short sea shipping that visit many different ports on its voyages. This work is being performed in subproject D3.

IEC – International Electrotechnical Committee – Digital Interfaces

The work in IEC TC80/WG6 on a new international standard for Ethernet-based integrated bridge communication is starting to converge. Flagship is contributing significantly to this work through subproject D1 – ICT Infrastructure. The standard will get the rather impressive name “IEC 61162-450 – Maritime Navigation and Radiocommunication Equipment and Systems – Digital Interfaces – Multiple talkers and multiple listeners – Light-weight ship systems interconnection”. The first committee draft was published in March 2009 and a new draft for voting will be finalised in early November 2009 and hopefully approved for distribution in January 2010.

The standard will be based on multicasting of Internet datagrams and will provide a safe, efficient and low cost means for integration of bridge systems. It uses standard Internet mechanisms only and can be implemented on all types of equipment, from small single board computers to large multifunction workstations. It will be able to accommodate legacy systems and simple sensors as well as work stations. The protocol is based on the well known IEC 61162-1 (also known as NMEA 0183) telegrams, but will provide some new features that makes the standard more suitable for integrated ship and navigation systems. The standard will also be able to accommodate redundant networks and has several other safety enhancing features.

With the emergence of new IMO performance standards for integrated navigation (2009), guidelines for integrated bridge systems and a performance standard for central alert management (expected late this or early next year), the need for a more functional network standard is acute. Thus, Flagship is providing critical input to the industry and the international standards organisations in this area. This work is performed in subproject D1.

ISO TC 8 – International Standards Committee – Ship and marine technology

As was reported under the item e-Navigation, IMO FAL tried to establish a correspondence group to develop guidelines for Single Window systems. This failed as too few parties were willing to contribute. However, this issue was discussed at the recent ISO TC8 plenary in Izmir, Turkey and it was noted that the terms of reference for the correspondence group match one of the already existing work items in the committee. Thus, if possible time-wise, ISO will try to provide a draft paper by the next FAL meeting in April 2010. Flagship partners will help with this report through work in the policy and incentives sub-project (D3).

Other issues that were discussed at the plenary meeting were the new ISO 30000 series of standards for ship recycling management and ISO 28000 series for supply chain security management. ISO 30000 is aimed at new demands for safe and environmentally friendly management of ship recycling and will support and supplement the IMO/International Labour Organization/ Basel Convention Working Group and the IMO Ship recycling Convention and regulations. *ISO 30000 will apply to the recycling of all types and sizes of ships, in both international and domestic trade, and be developed with the cooperation of international organizations including the IMO and the World Trade Organization. Among the potential issues the series will address are the scrapping of hazardous materials and requirements for recycling facilities. The standards will be compatible with ISO 9001 (quality management systems), ISO 14001 and ISO 28000 (security in the global supply chain).*⁴

The ISO 28000 series indeed assist in implementing governmental and international customs agency security initiatives, including the World Customs Organization's Framework of Standards to Secure and Facilitate Global Trade, the EU Authorized Economic Operators Programme, the US Customs Trade Partnership

⁴ From ISO news 2007-09-28

against Terrorism, and the International Maritime Organization's (IMO) International Ship and Port Facility Security Code.

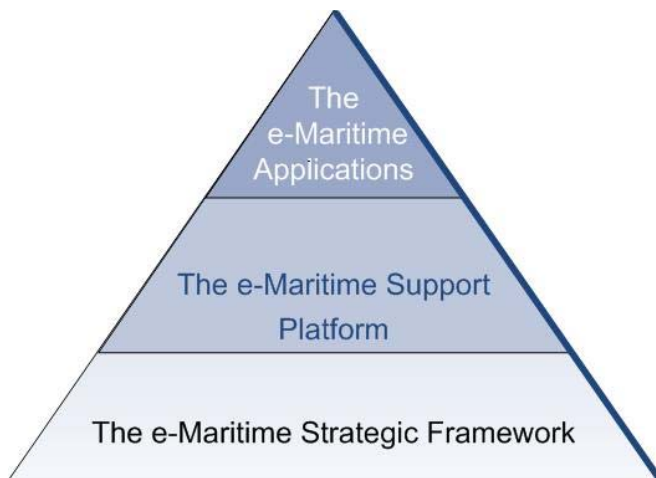
The report of IMO's Maritime Safety Committee meeting held earlier this month, acknowledged that "the ISO 28000 series were now published and numerous ports, terminals and organizations were being certified by third party independent accredited certification bodies;" while recognizing that "ISO standards could be applied to all ships, irrespective of size, type, purpose and whether operated internationally, domestically or within internal waters." The same can be said of all other transport segments in the supply chain.⁵

Flagship has a relatively modest role in this work and is contributing mainly to the ISO 28005 standard which is related to electronic port clearance. This work is performed in sub-project D3.

European policy – e-Maritime and Flagship contributions

The work on the e-Maritime concept continues in DG TREN. As noted on the issue of Shipping KPI, e-Maritime may change shipping in that it aims at improved cooperation between private and public parties and wants to rather use positive incentives instead of negative controls. E-Maritime was described as⁶:

- "e-Maritime" is working and doing business in the maritime sector with the support of internet based applications (advanced electronic);
- the "EU e-Maritime initiative" will embody policies, strategies and capabilities facilitating the development of "e-Maritime" services
- in support of an efficient and sustainable waterborne transport system throughout Europe, fully integrated within the logistic chains.



Currently, e-Maritime is envisaged as a three stage development process with very approximate goals of completion at 2012 (Strategic framework), 2015 (Support platform) and 2018 (Applications).

Besides Shipping-KPI, such applications as automated reporting, Single Window systems, and optimized sea passages through, e.g., use of slot times in port have been suggested. Another important aspect of e-maritime is to improve the public image of shipping and providing better working conditions for the crew. Thus, Flagship is directly at the core of the e-maritime initiative and Flagship results will play a significant role in e-Maritime.

Some concrete examples of Flagship results that have already been demonstrated and which are directly relevant to e-Maritime are:

- **A2 – KPIs for technical performance:** A system of indicators for main engines, auxiliaries and thrusters have been developed that allows monitoring of technical system performance both on the ship and shore. One can easily establish internal KPIs or even benchmarks between similar systems onboard different ships.

⁵ From ISO news 2007-10-05

⁶ Presentation at Joint meeting Short Sea Shipping and Motorways of the Sea Focal Points and Shortsea Promotion Centres, Brussels, 8 July 2009, Dimitrios Theologitis, HoU - DG TREN Maritime Transport & Ports Policy; Maritime Security.

- *B1 – Energy efficiency and monitoring.* A new tool developed in this subproject allows onboard and onshore personnel to monitor energy production and consumption in great detail. The Energy Efficiency Monitoring Tool shows the current consumption and efficiency of operation on board, giving the crew a tool to develop awareness for energy efficient operation through direct feedback to their actions. The Flagship SP B1 results can be used for implementation of IMO proposed Ship Energy Efficiency Management Plan (SEEMP), with proof of savings and analysis of saving potentials.
- *B5 – Support for rule compliance.* This tool will provide guidance as to what rules and legislation is applicable in specific geographic areas for specific ships with specific cargo. This will significantly help mariners as well as regulators as the tool in a longer term also can be used to check consistency and coverage of regulation.
- *C1 – Cooperative emergency management ship/shore.* Tools developed in this subproject provide support for information transfer and integrated operation between shipboard emergency management and other users on nearby ships or shore.
- *C2 – Prognosis, assessment and guidance DSS.* This subproject has developed a tool that is used on large cruise ship to provide guidance on remaining stability in case of hull damage and flooding. This is important for decision support relating to managing the stability of the ship as well as to when to evacuate large ships.

These are only some examples. Other activities in Flagship are more related to e-Navigation than e-Maritime (e.g., B3 – Nautical operation and B4 – Alarm filtering). Yet other activities deal with issues that are important also for the e-Maritime concept, but not through direct demonstrations (e.g., A1- Technical operation strategy and D2 – HSE and human impact).

Central for the activities listed above is the need for communication between ship and shore. This issue is being analysed in subproject D1 – ICT infrastructure and the final report from this subproject will be published in December. It will analyse the applicability of existing and emerging ship to shore communication facilities for various types of application, including aspects from distress alerts to crew infotainment. Current conclusions indicates that existing communication technology satisfies most of the relevant requirements, but that there are some technical issues that need to be considered when determining what kind of communication equipment to fit to the ship. There are also interesting developments in shore based ship communication that can be of particular interest to crew infotainment and integrated ship to ship operations.

Some relevant links

IMO: www.imo.org

IEC: www.iec.ch

ISO: www.iso.org

Flagship web site: www.flagship.be

Contact persons

Herman de Meester, Coordinator, ECSA, demeester@ecsa.be

Fernando Caldeira-Saraiva, Administrative manager, BMT, fernando@bmtmail.com

Ørnulf Jan Rødseth, Technical manager, MARINTEK, ornulf.j.rodseth@marintek.sintef.no