Shortage of seafarers: simulation as a way of solving the problem

The problem of the shortage of seafarers has already been discussed for number of years. Nevertheless, the urgency of the situation has not diminished.

Participants in the recent Transas' Simulation Users Conference couldn't avoid the issue either as the maritime industry is continuing to sound an alarm.

As Graham Wagstaff, Transas' technical simulation sales product support manager mentioned in his speech, the study by the Baltic and International Maritime Council (BIMCO) and the International Shipping Federation (ISF) confirmed that the current moderate officer shortage will become severe unless maritime training is increased and measures are taken to address wastage rates.

The shortage of officers could become critical by the middle of the next decade.

By 2015, the shortage of marine officers is likely to nearly treble to 27,000. On the other hand, the number of ratings will rise to 167,000 in 10 years time from the current figure of 135,000, according to a global study.

This puts a huge impetus on the industry and the pressure will only mount. In the short term the task of 'filling the gap' can be resolved by appealing to retired mariners to return to sea, to personnel from related industries, to serving and former members of the armed forces, or defence related industries facing a transition to civilian employment who have transferable skills. In the long term, the industry has to undertake more serious measures, paying special attention to the training of personnel.

When it comes to comparing different types of education, training on board a real vessel (OJT) has its disadvantages, namely high costs, while theoretical courses do not provide the ability to demonstrate watchkeeping capabilities in reality (for example, standard and emergency operations).

At the same time, marine simulation systems provide real-life operational training, extensive environmental effects, and generate various system faults ensuring team procedural training using visuals for greater realism.

Simulation-based training's advantages are self-evident. However, there are some obstacles. Governments and shipping companies are not always willing to invest in the expansion of training. There is no clear guidance from regulators; moreover, the lack of suitable qualified instructors is critical. These difficulties have to be overcome if the industry wants to avoid a serious crisis.

Considering the estimated surplus of ratings, simulator training gains new meaning. It allows a rating to gain necessary competence, underpinning knowledge and skills to qualify as an officer in a relatively short period of time. Simulator driven computer based training and assessment enables training to be delivered even at sea.

Overall, to boost the numbers of qualified sailors, it is vital to set up a comprehensive education, training, examination and certification system. Transas said that the company is ready to assist in this urgent matter.

Meanwhile, Transas has scored several successes recently, by way of installing simulators at various academies worldwide.

Late last year, Gothenburg-based Chalmers University of Technology took delivery of a large scale simulator, which it said would be used to develop and implement training standards, using the aviation industry as a model. It was due to be commissioned during the middle of this year.

Anders Rydlinger, managing director of Transas Scandinavia, said at the time of its unveiling, "Traditionally, all maritime training has been focused on individual technical skills in navigation and ship handling. It is now recognised that this knowledge must be complemented by leadership and management skills. Nowadays the objective of most training courses is to encourage teamwork with the aim of reducing the risk of individual error incidents and accidents."

The simulator itself was designed for use by external customers, for example, the training of the ship's bridge team, pilots and tug masters, as well as for investigation, research, design and master classes.

It is able to emulate any ship

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type, including high speed vessels and tugs. The scope of supply includes both primary and secondary bridges plus a built-in decision support system, a desktop bridge station and an interface to the Gothenburg SSPA hydrodynamic ship models database.

The system consists of two ship bridges with a circular visual field of view of 270 deg and 200 deg respectively.

It can perform the following tasks:

- Competency based courses for ship masters, officers and pilots.
- Human factors related courses.
- Crisis management on board, as well as in the whole organisation.
- Accident and incident investigation.
- Feasibility studies for port entry by particular ships.
- Port and fairway design.
- Research projects.
- Final assessment of master class students.

It also includes the scopes of part task bridge simulator and a GMDSS radio simulator.

As a full mission ship bridge simulator, the system meets the requirements of the Standards of Training and Certification for Watch Keeping (STCW'95) convention.

In August, MITAGS opened a simulation training centre at the Linthicum, Maryland, US campus.

MITAGS has been offering training programmes to seafarers for over 30 years. Today, over 100 courses are available. It claims to be one of the few schools in the US that provides all of the STCW-95 training courses that are necessary to advance from ordinary seaman to unlimited master. MITAGS also offers specialised expertise for a wide range of research and development projects within the maritime industry.

The opening included the renewal, upgrade, and enhancement of the institute's onsite simulation facilities, which were all carefully implemented over a 12 month period. The implementation process itself included extensive research in the following subject areas:

- Available technologies.
- Vendor support capabilities.
- Overall quality.

MITAGS' simulation training centre upgraded facility includes the following supplied by Transas:

- Two full mission shiphandling simulators.
- Two bridge tug simulators.
- Six part-task simulators.
- One full mission vessel traffic services simulator (VTS).

All of the simulators operate with the Navi-Trainer Professional 4000 (NT-PRO 4000) platform and share common technological capabilities with an unrivalled level of flexibility.

The Transas full mission shiphandling simulator is housed within a 360 deg curved projection screen that measures 80 feet in diameter and 30 feet in height. It includes a flexible bridge design and a series of enhanced instructor capabilities. The dedicated tug simulator utilises a 300 deg horizontal field of view plus a 42 deg vertical field of view. The six part-task bridges, and a second smaller tug simulator, offer 120 deg of visuals and are located in the fully upgraded all weather navigation (AWN) trainer. A VTS training suite and a 12 bridge ECDIS trainer, complete the current navigational simulator enhancements, which, along with all of the simulator bridges, can be operated in almost any combination for interactive exercises.

MITAGS also has numerous Transas simulation development tools, such as model wizard and virtual shipyard, for the visual database and hydrodynamic modelling.

Transas USA has also supplied Mid-Atlantic Maritime Academy (MAMA), formerly Tidewater School of Navigation, with a full mission ship handling simulator.

The simulator, based on the Transas Navi-Trainer Professional 4000 simulation software, consists of a 225 deg horizontal field of view forward combined with three rear viewing channels.

The bridge equipment is convertible to enable ship handling training on large vessels, as well as tugs and offshore supply vessels. Transas was also contracted to supply all related PC hardware and the supply included control equipment such as Z-Drive and Voith-Schneider propulsion controls seen on many tugs and offshore vessels. The full mission simulator is an extension of the already existing ARPA/radar and ECDIS class room simulators.

In addition, MAMA is equipped with a Transas TGS 4100 GMDSS simulator and is able to offer a full range of USCG and STCW approved maritime training courses from able seaman to master mariner. The installation of the simulator completes an expansion programme. TO