Hans Hederström is the Managing Director of CSMART Academy, Centre for Simulator Maritime Training, the state-of-the-art international training centre of the world’s largest cruise company, Carnival Corporation & plc Group. Opened in July 2009 and located in Almere, Netherlands, CSMART Academy established itself as a world-class training center for safety, sustainability and operational excellence in marine operations. It features the most advanced simulator equipment, technology and instructional tools and is aimed at training 5,000+ Carnival deck and engineering officers every year.

Hederström has over 30 years of maritime experience and is the principal architect in bringing the Academy to life, by setting the simulator specification and getting a team of professional instructors together responsible for the delivery of the course work.

Why was the Centre of Excellence CSMART Academy founded?

In 2007, four groups of technical educators travelled on eight ships from P&O Cruises and Princess Cruises – part of the Carnival Corporation family of brands – to evaluate bridge and safety management practices, report on their findings and recommend potential improvements. The educators agreed that each ship operated to a high standard of traditional navigation, but with today’s evolution to operating large cruise ships in ports with increased operational risk, they believed it was essential that navigation and planning be carried out with high precision using all available resources, and that bridge positions should be adapting with the times. Recommendations included offering understanding of bridge operation, equipment, navigation and procedures and simulator training.

To meet these recommendations, P&O Cruises and Princess Cruises established a training centre with actual bridge equipment and a layout identical to one used by Carnival’s most modern vessels. In July 2009, the CSMART facility opened, forming the foundation for today’s Arison Maritime Center.

The CSMART Academy features four full-mission bridge simulators with separate bridge wings, 8 part-task bridge simulators, 12 voyage planning stations, 7 ship stability training stations, 1 full mission engine simulator with 36 virtual engine rooms, 16 engine desk top simulators, 2 high voltage training simulators, 1 environmental training lab, 36 class rooms and 8 debriefing rooms. At nearly 11,000 m², the new CSMART Academy has doubled the capacity of the original centre, enabling Carnival Corporation to train more officers more often, spend more time training on simulator and provide more real-time feedback to officers.

Why is simulation training important and what are the key benefits for participants?

Just as in the aviation industry simulator training is required to develop and maintain skills to deal with critical high-risk operations. It would require a high risk for trainees for these situations in the real world. A simulator creates a safe environment to train and continuously develop and improve proficiency with an emphasis on critical thinking, decision making and problem solving.

Today’s ship simulators are technologically advanced. How developed are the simulation and operational features?

The operational features as well as the layout of bridge and engine control room are replicating the latest newbuild ships. The visual features are the most advanced in the industry providing the same level of vision as on the ships with real bridge wings featuring the same equipment on the real ships.

Please tell us more about the Continuous Development Program?

The CSMART Academy’s faculty is hosting the cruise industry’s first Continuous Development simulation based appraisal program. It is a nine Continuous Development Programs for deck, engine and electrical officers, inspired by the aviation and nuclear power industry’s approach to recurrent training and validation of competencies.

Completing the course work as part of the company’s Continuous Professional Development matrix is a mandatory requirement for every marine officer from each of Carnival Corporation’s nine cruise line brands, ensuring regulatory requirements.

What benefits do port studies bring to the development program of your participants?

During a port study captain and pilots create a joint passage plan which is tested under challenging conditions in the simulator over a five day period. This means that the bridge team and the pilots can have a shared mental model of the upcoming operation even before pilot leaves the ship. It also reduces the time for the master pilot and information exchange on most topics are already agreed upon and only dynamic topics such as weather and traffic need to be discussed.

The port study report also provides evidenced-based guidance in case of “if you go” – ‘you go’ situations if simulator-based operational and agreed/prepared passage plan is available.

This program also provides our cruise lines with the option to send a whole bridge team for specific training in a particular port with local pilots. This is a common procedure when a new build ship is about to enter into service. The local data files, which will enter into service in October/November has been available in the simulator since last year. We have done many port studies with this model and the bridge and engineering teams are expected to come to CSMART for through training before delivery.

This is how CSMART is creating safety through proactive resilient processes by anticipating and planning for unexpected events.

In terms of safety and sharing best practices, how important is the team-based approach on the bridge?

Looking into accident and accident reports you will find that the most common contributing factors are poor communication and one person error not detected and leading to negative outcomes.

“Human errors” are present in all industries and cannot be eliminated, but it is self-defeating for teams with overlapping tasks and responsibilities errors are expected, detected and managed before they cause any negative consequences.

Working as a coordinated team is essential in all time critical high risk industries, but it Machine; Hospital; Aviation etc.

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