Singapore to promote maritime digitalisation and artificial intelligence

by The Editorial Team — October 11, 2022 in Smart

Credit: MPA Singapore

The Singapore Maritime Institute (SMI) announced new partnerships with stakeholders in R&D collaborations to drive maritime digitalisation and artificial intelligence.

Namely, Chee Hong Tat, Singapore's Senior Minister of State for Finance and Transport, announced that SMI will be awarding an additional funding of S$12 million to Nanyang Technological University (NTU) to support the Maritime Energy and Sustainable Development (MESD) Centre of Excellence, as well as an additional funding of S$10 million over the next five-year period to the Centre of Excellence in Modelling and Simulation for Next Generation Ports (C4NGP).

Phase Two funding for the Maritime Energy and Sustainable Development Centre of Excellence

SMI will be awarding an additional S$12 million to NTU over the next five-year period, to support the MESD Centre of Excellence's efforts to deepen research for 14 maritime decarbonisation R&D projects that were developed in Phase One for industry deployment in Phase Two.

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The MESD will initiate joint projects on 16 R&D areas which it has identified with the Maritime and Port Authority of Singapore (MPA) and industry partners. These projects include trials on alternative fuels and energy sources, as well as associated adoption pathways.

Phase Two funding for the Centre of Excellence in Modelling and Simulation for Next Generation Ports

SMI will also be awarding an additional funding of S$10 million over the next five-year period to the C4NGP,which is part of the College of Design and Engineering at National University of Singapore (NUS), to translate the Centre's advanced digital twinning technologies for adoption by local port and the maritime industry.

In its next phase, the C4NGP aims to create and share new knowledge with local and international industry partners via its digital twin software packages. Other R&D

projects to be developed include Tuas Port's digital twin, advanced port operation planning systems, performance analysis of future automation systems, and a digital twin for haulier services in Singapore.

Harnessing AI for Maritime

#1 Maritime AI Research Programme: In addition to supporting the Maritime R&D Centre of Excellence, SMI will be working on AI research programmes, maritime use cases and collaborating with AI institutions to implement AI applications in maritime. SMI has awarded S$4.78 million to the Agency for Science, Technology and Research's (A*STAR) Institute of High Performance Computing (IHPC) to lead the Maritime AI Research Programme.

IHPC was identified as the suitable agency to lead given its deep AI expertise and experience in maritime R&D, and will use the funding to launch the first phase of the programme with a focus on maritime data excellence and AI modelling excellence as well as use cases. IHPC will co-develop the technologies in collaboration with other institutes of higher learning, research institutes, industry partners, and relevant public sector agencies in the maritime ecosystem.

#2 Maritime AI Grant Call: Jointly launched by SMI and MPA on 28 April 2022, and supported by the National Research Foundation Singapore, the Maritime AI Grant Call is a follow-up to the series of Memorandum of Understandings (MoUs) signed during the 2021 SMI Forum to address industry-wide gaps and opportunities arising from the increased use of automation and autonomy in the maritime industry. To kick-start this effort, SMI will be awarding grants to three proposals from NUS and Singapore Institute of Technology.

#3 Memorandum of Understanding Signing with AI4Diversity: Tan Cheng Peng, Executive Director, SMI, inked a two-year MoU with Mr Steve Nouri, Founder of AI4Diversity (AI4D), to promote the development of joint activities related to Maritime AI. Under the MoU, AI4D will advise SMI on Maritime AI initiatives, provide recommendations for the strategic development of Maritime AI R&D in Singapore, and facilitate the exchange of information on Maritime AI including results of research collaboration.

Strengthening Digital Safety and Security

To enhance the industry's resilience against cybersecurity risks, SMI has awarded S$4.77 million to iTrust, Centre for Research in Cyber Security at the Singapore University of Technology and Design to develop a Maritime Testbed of Shipboard

Operational Technology (MariOT) system, in collaboration with the American Bureau of Shipping and Singapore Polytechnic's Centre of Excellence in Maritime Safety.

The MariOT will be the world's first industrial-grade cyber-physical platform equipped with essential shipboard operational technology systems to offer a safe and realistic testing environment for cybersecurity technologies without disrupting actual vessel operations.

The hybrid platform will be used to design and validate new cybersecurity technologies for deployment onboard ships, as well as to train maritime professionals and students through cyber exercises and drills.

Driving R&D Talent through MPA Endowed Chair Professorship in Maritime Management

Matching NTU's contribution of S$500,000, SMI will contribute S$500,000 to an endowment fund for additional distributable income towards the MPA Endowed Chair Professorship in Maritime Management, which will replace the current MPA Professorship in Shipping Management that was first established in 2003 with an endowment of S$4 million by MPA.

The Endowed Chair Professorship will appoint a full-time Endowed Chair Professor to enhance maritime education with a strong base of faculty talents in Singapore, and drive the development of pedagogy and quality of academic modules through longer-term strategic plans for the Maritime Studies programmes.

This aims to enhance the quality of discourse, attract collaborations with international scholars and industry, and add greater intellectual and creative vibrancy to attract prospecting students to pursue a course of study and meaningful career in maritime.

Tags: AI | cyber security | digitalization | Singapore