

**WELCOME ADDRESS BY DR SANJAY C KUTTAN,  
EXECUTIVE DIRECTOR, SINGAPORE MARITIME INSTITUTE  
AT THE SINGAPORE MARITIME INSTITUTE (SMI) FORUM 2019,  
WEDNESDAY 09 OCTOBER 2019,  
MARINA MANDARIN SINGAPORE**

Senior Minister of State for Transport and Health, Dr Lam Pin Min  
Your Excellency Ambassador Dorte Bech Vizard, Ambassador of Denmark to  
Singapore  
Singapore Maritime Institute (SMI) Board Members, and Governing Council Members,  
And Distinguished guests,

Good morning and welcome to the SMI Forum 2019.

- 1 I extend sincere apologies from SMI's Chairman Mr Wong Weng Sun who sends his regrets and wishes everyone here today a fruitful session.
- 2 On behalf of the team from SMI who have worked hard to pull this event together, we are delighted and honoured to see this gathering of leaders and professionals from the industry, agencies and academia once again at our ninth edition of SMI's Annual Forum.

**Introduction and Recap of SMI's efforts in Maritime R&D**

- 3 In close collaboration with the industry, Institutes of Higher Learning (IHLs) and local Research Institutes (RIs), the mission of SMI since its establishment in 2011, is to enhance Maritime Singapore as a global maritime knowledge and innovation hub through world-class R&D, training and education and thought leadership in policy formulation.
- 4 With a focus on deepening research capabilities and expertise within the maritime research community, SMI charts and implements the maritime research strategy through several key initiatives, which aim to create and capture value for our maritime industry.

**Singapore R&D Roadmap 2030: Maritime Transformation**

- 5 In 2013, SMI released the first Maritime R&D Roadmap 2025, which served as the cornerstone of maritime R&D activities, providing clear direction on the research capabilities and expertise to be established in Singapore.
- 6 It also helped to raise strong awareness amongst the industry and Institutes of Higher Learning on the research programmes and key areas where funding would be made available.

- 7 SMI subsequently launched 6 thematic R&D grant calls and 2 joint grant calls with the Research Council of Norway, enabling SMI to build up the local capabilities within our IHLs and grow the research activities in the maritime industry.
- 8 Recognising the changing environment, including developments in the maritime policy landscape and rapid growth of emerging technology which is moulding the future of the industry, SMI has partnered MPA to refresh the Roadmap 2025 in alignment to the Sea Transport Industry Transformation Map which was launched by Senior Minister of State for Transport and Health Dr Lam Pin Min in January 2018.
- 9 The second installation of the roadmap titled 'Singapore R&D Roadmap 2030: Maritime Transformation' was developed, and launched in April 2019 at the Singapore Maritime Technology Conference during Singapore Maritime Week.
- 10 The Singapore Maritime R&D Roadmap 2030 charts out the key focus areas for the strategic development of the maritime industry, as well as research and technological capabilities.
- 11 The Roadmap has outlined five Strategic Research Thrusts to sharpen Singapore's competitive edge, capitalise on new opportunities for greater value creation and capture, and safeguard our strategic interests. The five thrusts are:
  - a. Efficient & Intelligent World Class Next Generation Port;
  - b. Strategic Sea Space & Maritime Traffic Management;
  - c. Smart Fleet Operations & Autonomous Vessels;
  - d. Effective Maritime Safety & Security; and
  - e. Sustainable Maritime Environment & Energy.
- 12 Today, the panel discussions will focus on 3 of the Strategic Research Thrusts, namely Strategic Sea Space & Maritime Traffic Management; Smart Fleet Operations & Autonomous Vessels; and Sustainable Maritime Environment & Energy.
- 13 To provide a quick overview on the Roadmap, SMI has prepared a video which will be officially launched and screened this morning.
- 14 The Singapore Maritime R&D Roadmap 2030 serves to better align Singapore's maritime R&D strategies and directions, for better resource prioritisation and allocation. To build these R&D capabilities, it will be supported by the Maritime Transformation Programme (MTP), which will leverage national funding, resources and public-sector researchers.

## **Maritime Transformation Programme (MTP)**

- 15 Announced during Singapore Budget 2018 by Finance Minister Mr Heng Swee Keat, the MTP seeks to leverage the Research, Innovation and Enterprise Funds (RIE Funds), to grow maritime R&D capabilities and transform the sector. A total of S\$50 million have been committed towards R&D under the MTP to enable the transformation of the maritime sector.
- 16 I am pleased to announce that MPA has appointed SMI as the Programme Office for the MTP, and thus will continue to play an important role in driving Singapore's maritime R&D efforts, guided by the Singapore R&D Roadmap.

## **Centre of Excellence in Autonomous & Remotely-Operated Vessels**

- 17 To sustain strong momentum, SMI established three maritime research Centres of Excellence (CoEs) between 2017 and 2018 in the strategic research areas of Next Generation Ports, Maritime Energy and Sustainable Development, and Maritime Safety.
- 18 These national level CoEs form the repositories of deep expertise and knowledge, as well as focal points for deeper engagement with the industry and across all knowledge centres in Singapore and abroad.
- 19 I am pleased to announce today that the Centre of Excellence in Autonomous & Remotely Operated Vessels (or CEAOPS) will be the first initiative to be funded under the MTP. Established in the Technology Centre for Offshore and Marine, Singapore (TCOMS), CEAOPS will be the national focal point for Maritime Autonomous Surface Ships R&D, leading the research and technology innovation required for the safe and efficient operations of autonomously and remotely operated vessels, as well as vessels equipped with smart maritime systems and solutions, in complex operating environments.
- 20 As a national R&D centre to co-develop future marine and offshore systems and solutions, supported by its pool of marine and offshore expertise and state-of-the-art cyber physical modelling and simulation capabilities, including a Deep Ocean Basin, TCOMS is well-positioned to host the CEAOPS.
- 21 The CEAOPS will concurrently undertake core capability development and collaborate with industries and R&D organisations – both local and international – to address specific challenges in autonomous vessels through cross-disciplinary research.

- 22 Through these efforts, the CEAOPS will also support MPA's efforts in establishing Singapore as a leader in maritime transformation towards smarter and autonomous systems, including being a global operations hub for smart fleets.
- 23 The establishment of CEAOPS will be officiated today by a Signing Ceremony between SMI and TCOMS that will be witnessed by Guest-of-Honour SMS Dr Lam Pin Min.

### **SMI's Journey Ahead**

- 24 Moving forward, SMI will focus its efforts on translating the rich R&D capabilities developed into industry adoption and operationalisation, while continuing its role in support of building a strong and vibrant maritime research and innovation ecosystem through maritime R&D excellence.
- 25 This will be achieved through close collaboration and partnership with all players of the maritime and research community in Singapore, as well as international strategic partners.
- 26 SMI also aims to stimulate a more dynamic and exciting maritime sector through R&D and innovation to attract the best minds to sustain the efforts in this transformational journey.
- 27 As we continue the next phase of SMI's R&D journey, I warmly welcome and look forward to all of you from the industry, academia and Government agencies for cross-institutional partnerships. I am confident that such collaboration will be a force multiplier, delivering outcomes that go beyond what individual parties can achieve on their own.
- 28 We need to be purposeful in developing a National Maritime R&D Network, a collaborative network of maritime researchers, to facilitate and encourage research work across all our local institutions, through the COEs leveraging expertise within, and together with industry experts to up the ante for impact within a shorter time frame.
- 29 We call this force multiplier COE squared – Centres of Excellence, Community of Experts that we believe will break down silos and encourage a collaborative effort towards addressing our national maritime transformation challenges through R&D and innovation.

## **Maritime Transformation: Risks, Challenges and Rewards**

- 30 As we focus our research and innovation efforts towards Maritime Transformation, the risks, challenges and rewards of these efforts become key considerations and points of discussion. This serves as the backdrop and theme for this year's SMI Forum.
- 31 We are honoured to have Mr Frederick Chew, CEO of A\*STAR as our keynote speaker and we look forward to his insightful address.
- 32 We are also honoured to have the support of other distinguished speakers and panellists which I am certain will stimulate much discussion on the opportunities ahead of us to capitalise on R&D and Innovation to help us move quickly along in our transformation journey.

## **Conclusion**

- 33 On behalf of team SMI, I thank all distinguished speakers and panellists in advance for your valuable time and contributions towards a thought-provoking morning.
- 34 I would also like to thank Senior Minister of State for Transport and Health Dr Lam Pin Min for gracing our event today.
- 35 Our appreciation also goes to the SMI Board and Governing Council Members for their continuous support.
- 36 We also thank you, our distinguished audience, for joining us today and I wish all of you a good and productive event ahead.
- 37 Finally, a big shout out to my Team at SMI for pulling this event together which would not have happened without their dedication and professionalism as a team.
- 38 Thank you.