

Enhancing Safety through e-Navigation

SCOPE

- What is e-Navigation?
- How can e-Navigation enhance safety in the SOMS?
- Updates on ongoing projects

TEE



Why is e-Navigation needed?

- Many ships do not have integrated navigational systems
- Each system may use a unique format and mode of communications which limits the ability to exchange information between systems.
- Key information is not presented in a coordinated manner for mariners.

Is there a better way?







E-Navigation is defined as:

'the harmonized collection, integration, exchange and presentation of maritime information onboard and ashore by electronic means to enhance berth to berth navigation and related services, for <u>safety and</u> <u>security at sea</u> and <u>protection of the marine</u> <u>environment'</u>



INTERNATIONAL MARITIME ORGANIZATION



What is e-Navigation?

IMO e-Navigation Strategy Implementation Plan (SIP)





Today's Operating Environment

Key Statistics



More than **80,000** vessel transits annually



Approximately <u>1,000</u> Km



<u>1/3</u> of the world's traded goods



<u>1/6</u> of the world's total oil supply





Overview of Singapore's e-Navigation Concept





e-Navigation Architecture





Example 1 – NextGen Vessel Traffic Management System

- NGVTMS Innovation Programme commenced in Jun 2018.
- Research on innovative operating concepts, business rules/algorithms and technologies
- Useful in complex and busy environments



Vessel Traffic Management System (VTMS)

Advance VTMS features Automatic Vessel Reporting Intelligent Collision Detection Traffic Hotspot Prediction/Data Analytic Automated Workflow

Human centric workspace and console design Enhanced Human Machine Interface New VTIS Organisation Structure







Example 2 – VHF Data Exchange System (VDES)

- VDES is based on user requirements and guidelines which are developed through the work of the IALA ENAV Committee.
- MPA developed a prototype VDES system and testing is being carried out at the MPA Innovation Lab.
- Working towards interoperability testing of VDES developed by other countries/agencies in 2020.





- E-Navigation will be a key technological means towards enhancing maritime safety in our waters.
- MPA is committed to actively contribute to the work at international bodies such as IALA and IMO to further the work of e-Navigation.
- MPA is keen to collaborate on e-Navigation projects that can enhance the navigational safety of the SOMS.











