



# Reimagine Maritime Safety and Training in a Digital Era

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**SP** Singapore  
Polytechnic

**CHANGE**

**TECHNOLOGY**

**HUMAN CENTRIC**

**FUTURE READY**



**CONTENTS**

THE ONLY  
CONSTANT IS  
CHANGE

# SHIP EVOLUTION

**ENGINE CONTROL ROOM**

1980      MODERN

**NAVIGATION BRIDGE**

1980      MODERN

# GREEN INITIATIVES

Global Warming

Biofuel      Hydrogen      Liquefied Natural Gas

**ALTERNATIVE FUEL**

Electrification

# DIGITAL DISRUPTIONS

AI      Blockchain      Cloud      Data      5G

**GIG WORKFORCE**

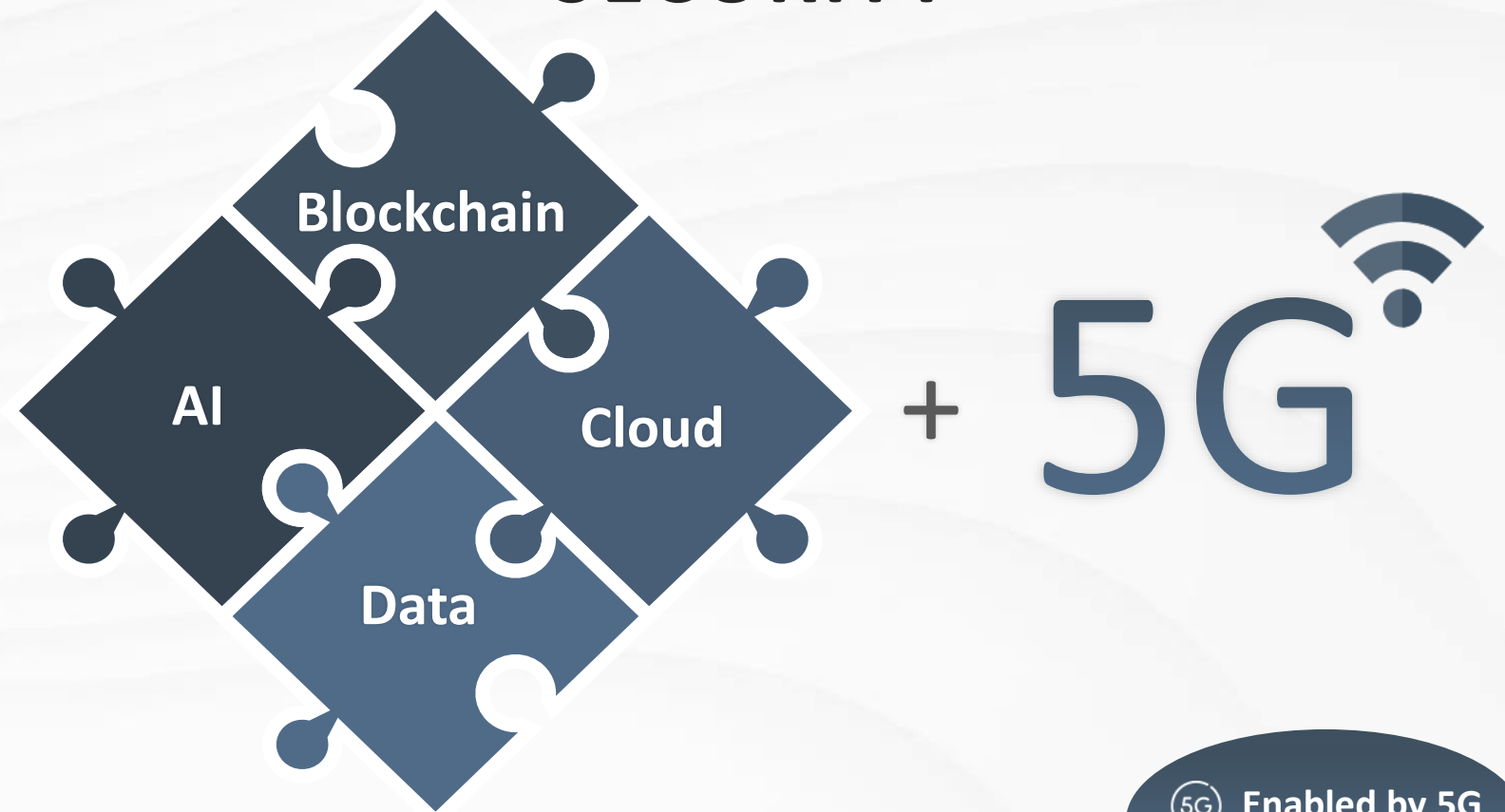
**TECHNOLOGY SAVVY**

**GENERATION Z**

|     |      |
|-----|------|
| 3%  | 2019 |
| 27% | 2025 |

**EMBRACE  
TECHNOLOGY  
IN MARITIME  
SAFETY**

# TECHNOLOGIES FOR SAFETY AND SECURITY



**5G** Enabled by 5G  
Connectivity

**AI Competency  
Assessment**

**Block Chain  
Enabled Smart  
Contract**

**Cloud Based  
Training**

**Data Driven  
Decision Making**

# BE HUMAN CENTRIC

## Recognise the Limitation of Human

Human factor > 80% of maritime incidents

Use technology to amplify human capability



## Understand the Limitation of Technology

Ensure no technology overload

Have a plan B – Redundancy

Human versus AI  
or  
Human with AI



Artificial Intelligence shall Augment Our Intelligence



**FUTURE READY OUR PEOPLE**

# SP'S MARITIME HERITAGE

1950s

Establishment of  
Singapore Polytechnic  
1954

Nautical Studies &  
Marine Engineering  
1957/1959

1990s

Singapore Maritime  
Academy (SMA) - SP  
2000

Integrated Simulation  
Centre - SP/MPA  
2002

2000s

2010s

Formation of MI@SP  
2012

CoE in Maritime  
Safety  
1 Sep 2018

2020s



# DIGITAL INNOVATIONS IN TRAINING



**ANRS/NGNS  
(Digital Platform for  
Future Competency)**



**AI Assessment  
(Digital Assessment of  
Human Competency)**

**AR/VR/Immersive  
(Digital Delivery of  
Training)**





# Digital Platform for Future Competency

**MANNED**

Integrated Sensors  
for Human Factors  
Analysis



**Integrated VTS**

**REMOTE AND  
AUTONOMOUS**

Modular and  
Reconfigurable



Next Gen  
Operations -  
Remote Ops



Intelligent  
Vessel Targets



E-Nav  
Compatible



**Advanced Navigation  
Research Simulator  
(ANRS)**



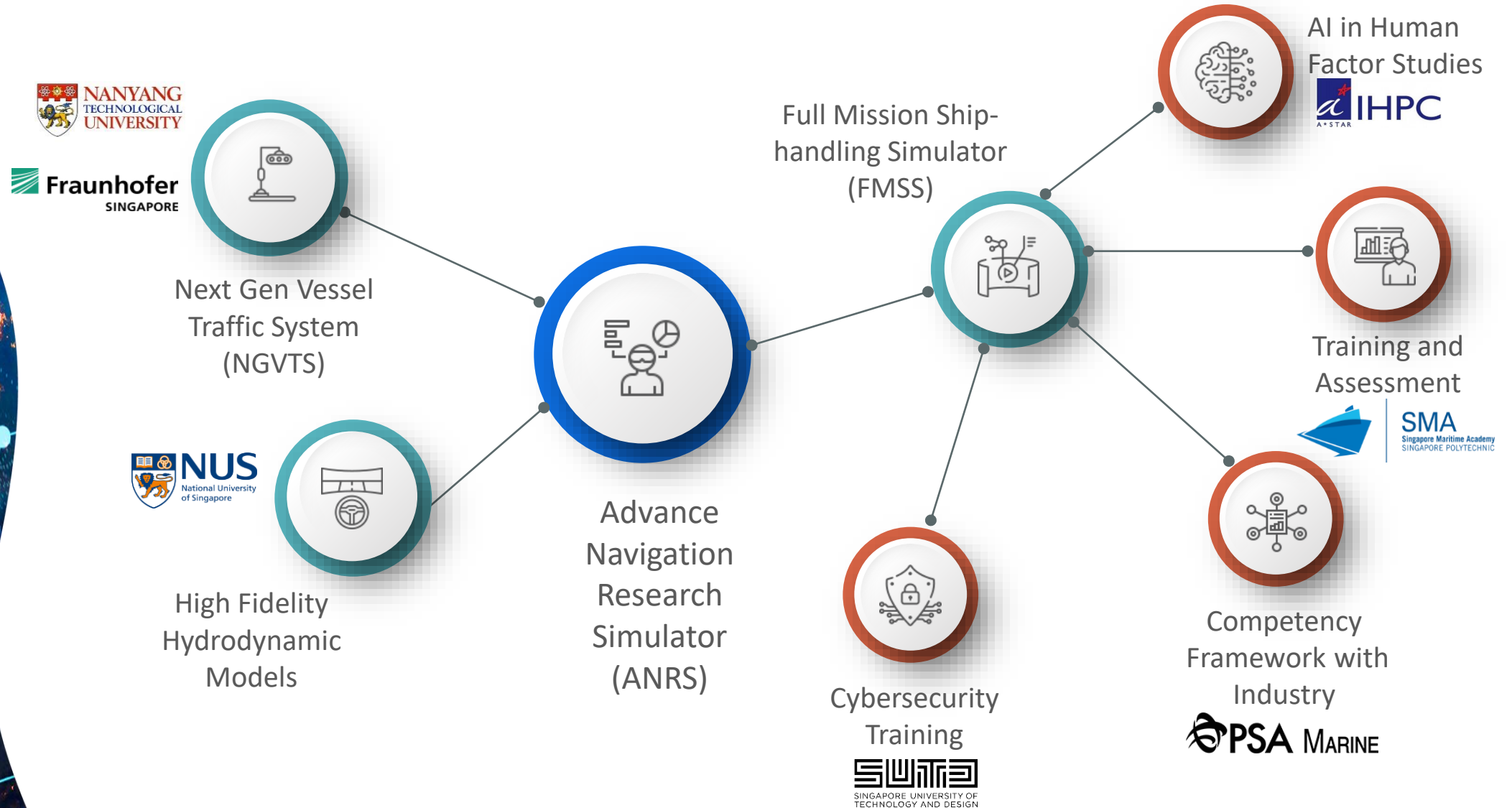
**Next Gen  
Navigation  
Simulator (NGNS)**



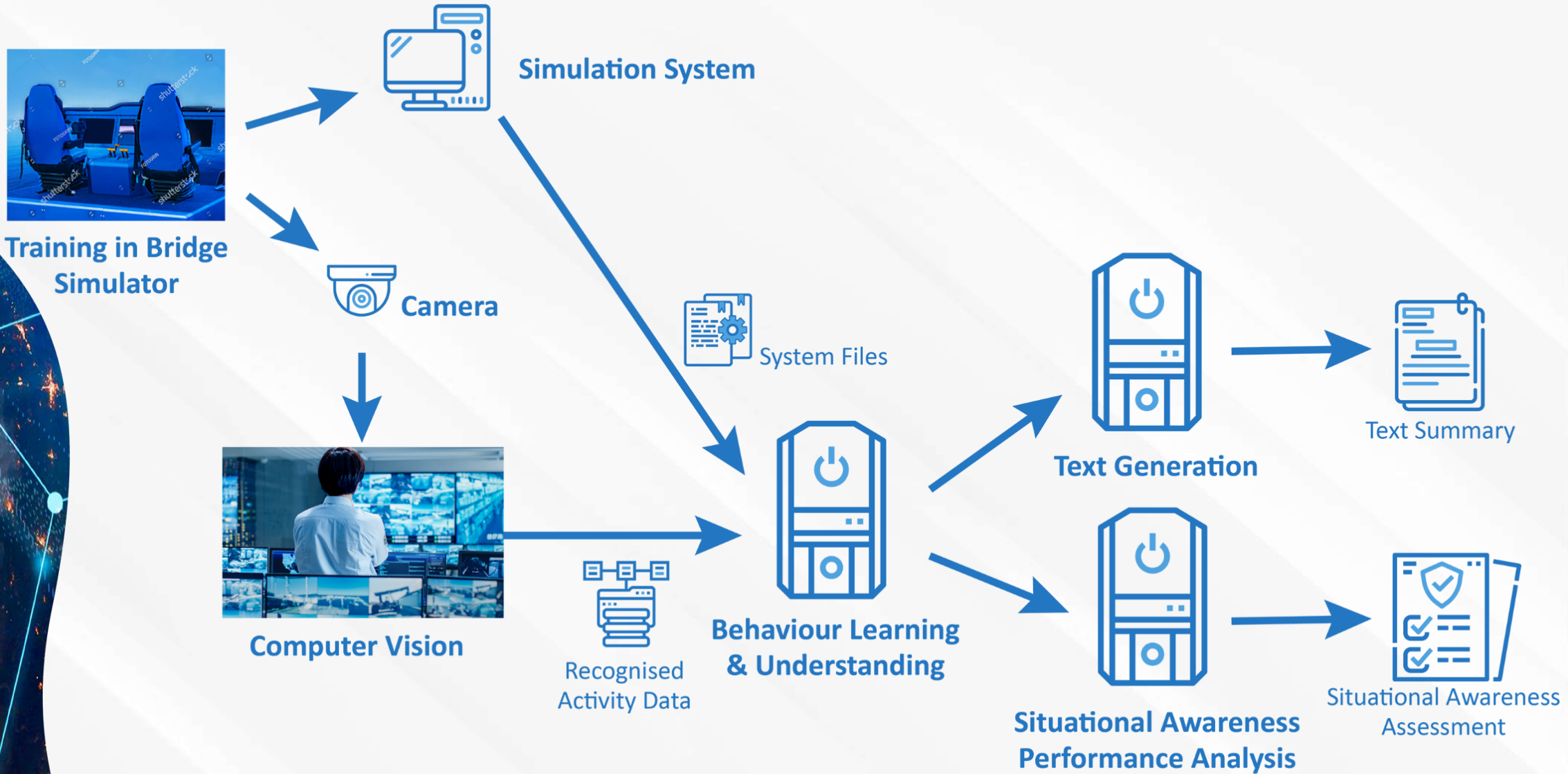
Access to Training  
Database for  
Analytics

**MIXED ENVIRONMENT OPERATIONS**

# Leverage National Research Ecosystem



# AI in Training Assessment and Delivery



In Partnership with



**SMA**  
Singapore Maritime Academy  
SINGAPORE POLYTECHNIC

**PSA MARINE**

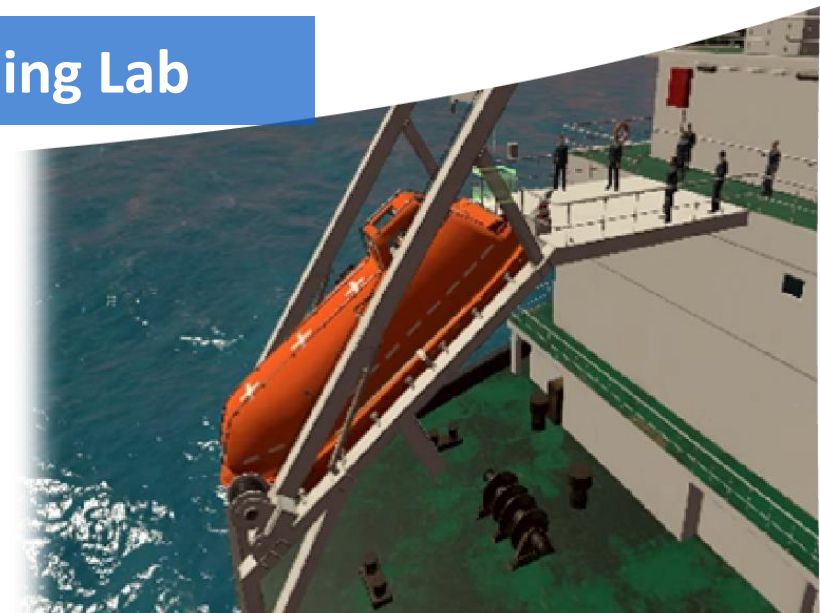




360 Editor Tool Training for Company

# Digital Delivery of Training

Maritime Immersive Learning Lab



# TAKEAWAY

**Safety is NEVER A COST  
but AN INVESTMENT**

- **EMBRACE TECHNOLOGY**
- **BE HUMAN CENTRIC**
- **FUTURE READY OUR PEOPLE**

**SP** Singapore  
Polytechnic

**mi** SINGAPORE  
MARITIME  
INSTITUTE

