The United Nations Economic and Social Commission for Asia and the Pacific (ESCAP)

International Conference on Autonomous Shipping in Asia and the Pacific

Country Presentation on the Matters of Autonomous Shipping:

Implementation of Autonomous Shipping Technologies in Malaysia

Cdr Ang Chin Hup (R)
Country Representative, Malaysia

Bangkok, Thailand
28th – 29th February 2024
Scope of Presentation

- **Part 1:**
  - Current Challenges to Shipping in Malaysia
  - Malaysia’s Efforts to Improve Safety of Navigation & Sustainability in Shipping

- **Part 2:**
  - Potential Impacts of Autonomous Shipping in Malaysia
    - Safety of Navigation
    - Sustainability in Shipping
    - Cybersecurity Threat
    - Regulatory Framework

- **Part 3:**
  - Recommendations for Autonomous Shipping in Malaysia
  - Steps Taken by the Ministry of Transport Malaysia on Autonomous Shipping Project
Part 1: Current Challenges to Shipping in Malaysia

➢ As a council member of the IMO, Malaysia:
  ✓ Complies with **IMO instruments** such as the SOLAS, COLREG, MARPOL & ISPS Code
  ✓ Participates in the **IMO’s programs** on safety of navigation & reduction of greenhouse gas emissions from ships & ports

➢ However, the **safety of navigation** & the **sustainability of shipping** remain as major concerns in Malaysia

*Malaysia’s participation in the IMO programs*

(Source: Ministry of Transport Malaysia)
Part 1: Malaysia’s Efforts to Improve Safety of Navigation

- Malaysia collaborates the IMO & neighboring nations to improve the safety of navigation by:
  
  ✓ The Malacca Strait Patrols and Traffic Separation Scheme help prevent collisions

  ✓ Malaysian Maritime Enforcement Agency (MMEA) enforces maritime laws and regulations

Traffic Separation Scheme in the Strait of Malacca
(Source: https://mehsoms.net)

Source: MMEA
Part 1: Malaysia’s Efforts to Improve Sustainability in Shipping

➢ Shipping has an impact on **marine ecosystems** and climate change

➢ **Maritime law enforcement & collaborations** among relevant agencies on environmental protection in Malaysian waters

➢ Malaysia Participated in the IMO’s Green Voyage 2050

*Maritime regions in the Peninsular Malaysia (Source: MMEA)*

*Source: The IMO*
Part 2: Potential Impacts of Autonomous Shipping on The Safety of Navigation

❖ **Strengths:**
✓ Safety improvement
✓ Enhanced situational awareness
✓ Faster response time

❖ **Weaknesses:**
✓ Lack of human oversight
✓ **Limited regulatory framework**
✓ Limited infrastructure

❖ **Opportunities:**
✓ **Enhance the sustainability of shipping**
✓ Real-time risk management

❖ **Threats:**
✓ Public acceptance
✓ **Cybersecurity vulnerabilities**
✓ Economic implications

Illustration of an autonomous ship

*Source: https://sync.cobham.com/*

cdr.angch@gmail.com
Part 2: Potential Impacts of Autonomous Shipping on the Sustainability in Shipping

❖ **Strengths:**
  ✓ Reduced emissions
  ✓ Increased use of renewable energy
  ✓ Improved coastal monitoring

❖ **Weaknesses:**
  ✓ Potential for environmental accidents
  ✓ Disruption of marine life
  ✓ **Limited regulatory framework**

❖ **Opportunities:**
  ✓ **Improved environmental sustainability**
  ✓ Real-time monitoring and response
  ✓ Advancements in sustainable technology

❖ **Threats:**
  ✓ Potential environmental accidents
  ✓ Disruption of marine ecosystems and wildlife
  ✓ Inadequate enforcement of environmental regulations

Illustration of an autonomous ship

Source: https://www.porttechnology.org/
Part 3: Recommendations for Autonomous Shipping in Malaysia

1. Enhancing Safety of Navigation

✓ Develop regulations and guidelines for autonomous ships based on IMO’s MASS Code

✓ Provide training and education programs for stakeholders

✓ Improve the VTMS monitoring system to track autonomous ships

✓ Conduct regular safety assessments to evaluate performance and identify potential risks
Part 3: Recommendations for Autonomous Shipping in Malaysia

2. Mitigating Environmental Impact

✓ More stringent enforcement on environmental laws

✓ Incentivize the use of clean energy sources

✓ Promote sustainable port infrastructure

✓ Promote waste management

Malaysia’s Contribution to the United Nations’ Sustainable Development Goals (SDGs)

(Source: Mazlin Mocktar, Lee K E & S Sivapalan)
Part 3: Recommendations for Autonomous Shipping in Malaysia

3. Mitigating Cybersecurity Risks

- The Cyber Security Malaysia (CSM) & the National Cyber Security Agency (NACSA) are to further mitigate cybersecurity risks.

- The National Cyber Security Policy (NCSP) & The Malaysia Cyber Security Strategy (MCSS) 2020 – 2024 will serve as the guides on cybersecurity.

- To enhance the VTMS/AIS monitoring system to counter risks to cyberattacks through:
  
  ✓ Information-sharing on cybersecurity to prevent threats to safety and security protection
  
  ✓ Coordinate training on countering cybersecurity measures

(Source: https://techwireasia.com)
Part 3: Recommendations for Autonomous Shipping in Malaysia

4. **Enhancing Regulatory Framework**

- ✓ Enhance regulatory framework with the **IMO’s MASS Code** by 2028 on the safety of navigation & the sustainability of shipping

- ✓ Collaborate with international organizations to develop global standards

- ✓ Collaborate with stakeholders to develop and implement safe & sustainable shipping practices

- ✓ Coordinate research and development in autonomous technology
Part 3: Steps Taken by the Ministry of Transport Malaysia on the Autonomous Shipping Project

1. Malaysia was Selected as One of the Five Countries by the UN ESCAP in the Autonomous Shipping Project

2. Malaysia Participated in the APEC Transportation Working Group(TWG) Workshop on the Autonomous Shipping through On-Line

3. Co-hosted the National Workshop on Autonomous Shipping with the UN ESCAP through On-Line

4. The Ministry of Transport Malaysia Hosted the Technical Visit by the UN ESCAP’s Staff to Malaysia to discuss on Autonomous Shipping

5. Malaysian participants attend the International Conference on Autonomous Shipping hosted by the UN ESCAP
Part 3: Strategy to Prepare Malaysia for Autonomous Shipping

1. **Invest in Technological Infrastructure**: To Invest in the necessary technological infrastructure to support the development and operation of autonomous ships, including its regulatory framework.

2. **Enhance Navigation Safety**: To Enhance navigation safety by promoting the use of advanced technology such as collision avoidance systems, electronic chart displays, and automated identification systems.

3. **Promote Sustainable Shipping**: To Promote sustainable shipping practices by encouraging the use of low-emission fuels, such as liquefied natural gas (LNG) and biofuels.

4. **Develop a Skilled Workforce**: To Develop a skilled workforce to support the development and operation of autonomous ships.

5. **Foster Collaboration**: To Foster collaboration with other countries, international organizations, & the private sector to promote the safe and sustainable development of autonomous shipping.
Summary of Presentation

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  ➢ Potential Impacts of Autonomous Shipping in Malaysia
    ❖ Safety of Navigation
    ❖ Sustainability in Shipping
    ❖ Cybersecurity Threat
    ❖ Regulatory Framework

❑ Part 3:
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*Thank You*

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