A Model of the Adoption of Maritime Autonomous Surface Ship

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Abstract : This study examines the factors influencing the adoption of MASS in Taiwan's shipping industry. Digital technology and unmanned vehicle advancements have enhanced efficiency and reduced environmental impact in the shipping industry. The IMO has set regulations to promote low-carbon emissions and autonomous ship technology. Using the TOE framework and DOI theory, a research model was constructed, and data from 132 Taiwanese shipping companies were collected via a questionnaire survey. A structural equation modeling (SEM) was conducted to examine the relationships between variables. Results show that technological and environmental factors significantly influence operators' attitudes toward MASS, while organizational factors impact their willingness to adopt. Enhancing technological support, internal resource allocation, top management support, and cost management are crucial for promoting adoption. This study identifies key factors and provides recommendations for adopting autonomous ships in Taiwan's shipping industry.

Keywords : MASS, technology-organization-environment, diffusion of innovations theory, shipping industry
Conference Title : ICTTE 2024 : International Conference on Traffic and Transportation Engineering
Conference Location : Sydney, Australia
Conference Dates : November 04-05, 2024