July 8th, 2025

MTI Co., Ltd.
Mitsubishi Shipbuilding Co., Ltd.
TSUNEISHI SHIPBUILDING
Japan Agency for Marine-Earth Science and Technology
Japan Marine United Corporation
Mitsui E&S Co., Ltd.
National Maritime Research Institute
TSUNEISHI AKISHIMA LABORATORY Co., Ltd. (formerly Akishima Laboratory)
The University of Osaka
Kyoto University

“Development of Integrated Simulation Platform for Sustainable and Competitive Maritime Industry” has been selected as a R&D project under K Program

MTI Co., Ltd. (a NYK Group company), Mitsubishi Shipbuilding Co., Ltd., TSUNEISHI SHIPBUILDING Co., Ltd., Japan Agency for Marine-Earth Science and Technology, Japan Marine United Corporation, Mitsui E&S Co., Ltd., National Maritime Research Institute, TSUNEISHI AKISHIMA LABORATORY Co., Ltd. (formerly Akishima Laboratory), Graduate School of Engineering The University of Osaka and Kyoto University cooperatively proposed a project “Development of Integrated Simulation Platform for Sustainable and Competitive Maritime Industry” and the project has been selected by JST, Japan Science and Technology Agency. It aims at to realize the R&D Concept of “High-Performance Next-Generation Vessel Development Technology Using Digital Technology and High-Resolution and High-Precision Environmental Change Prediction Technologies to Support the Stable Operation of Vessels (Tentative Translation)” set out in the Key and Advanced Technology R&D through Cross Community Collaboration Program (K Program) of Japanese Government.

K Program promotes research and development, as well as the utilization of its outcomes, for advanced and critical technologies that are essential for Japan to maintain a solid position in the international community over the medium to long term. As one of the projects undertaken in the K Program, we aim to secure world-leading next generation ship development, design and construction capabilities, and ensuring safe marine transportation

in accordance with the R&D vision identified by Integrated Innovation Strategy Promotion Council and the R&D Concept set out by Japan's Cabinet Office and MEXT, Ministry of Education, Culture, Sports, Science and Technology.

1. Project Title:

"Development of Integrated Simulation Platform for Sustainable and Competitive Maritime Industry"

*The project title could be changed at a later stage

2. Project Leader:

Hideyuki ANDO, Director of MTI Co., Ltd.

3. Project outline:

The focus of ship demand will shift toward high-performance next-generation ships that adopt alternative fuels to reduce greenhouse gas emissions, energy-saving technologies such as wind propulsion, and advanced integrated control systems including autonomous navigation. Japan's maritime industry faces the challenge of developing and supplying next-generation ships with increasingly sophisticated and complex functions in shorter lead time, while also expanding its shipbuilding capacity to meet growing global demand amid a declining labor force.

To address this, this research and development project will establish an "Integrated Simulation Platform" that enables simultaneous consideration of ship lifecycle and supply chain, at the initial development and design stages, to optimize ship design and construction plans. This project will promote the implementation of virtual engineering concept and techniques into the maritime industry.

Additionally, regarding weather and sea condition predictions that impact the safe and stable ship operations, a seasonal prediction technology, covering 1 to 3 months in advance, including extreme phenomena such as typhoons, will be developed and integrated into the platform.

4. Project period: 5 years

*The project will start after the Program Director approves the project plan.

5. Project budget: Maximum JPY 12 billion

*The total budget in the entire R&D Concept

6. Contact information:

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7. Related links:

i. JST Press Releases (in Japanese)
https://www.jst.go.jp/pr/info/info1772/index.html

ii. Japan's Cabinet Office: R&D Concept (in Japanese)
"High-Performance Next-Generation Vessel Development Technology Using Digital Technology and High-Resolution and High-Precision Environmental Change Prediction Technologies to Support the Stable Operation of Vessels (Tentative Translation)"
https://www8.cao.go.jp/cstp/anzen_anshin/2_20231225_mext.pdf