

12 June 2020

Marubeni Corporation

Tryangle Inc.

Mitsui E&S Shipbuilding Co., Ltd.

City of Yokosuka

### Joint Technological Development Programme for the Demonstration of Unmanned Ships

The consortium constituted by Marubeni Corporation (hereinafter, “Marubeni”), Tryangle Inc. (hereinafter, “Tryangle”), Mitsui E&S Shipbuilding Co., Ltd. (hereinafter, “Mitsui E&S Shipbuilding”), and the City of Yokosuka applied to and secured a place in the “Joint Technological Development Programme for the Demonstration of Unmanned Ships” led by The Nippon Foundation. The consortium is to launch a pilot project with an aim to establish the technology for autonomous ship operation in Yokosuka City (hereinafter, “The Proof of Concept”) with the financial support awarded by The Nippon Foundation.

Currently, Japanese coastal trade is facing issues resulting from its aging population and a declining number of ship crew engaged in the industry. Under these circumstances, autonomous ships are expected to reduce the workload of the ship crew while enhancing operational safety. Unmanned ships will contribute to secure, safe and stable sea transport in Japan; for instance, the technology is expected to play a significant role in transporting necessary goods should Japan experience a natural disaster.

The Proof of Concept is to be held in a voyage route between Mikasa Pier and Sarushima Island in Yokosuka City. The autonomous ship technology being developed by Mitsui E&S Shipbuilding is to be retro-fitted on one of the existing small-sized passenger boats operated by Tryangle, in order to achieve autonomous ship operations including berthing and unberthing\*. The retro-fitting procedure and the operational tests of the autonomous technology will be completed by the end of 2021, and the autonomous operation is to be conducted by the end of March 2022.

In collaboration with The Nippon Foundation, Marubeni, Tryangle, Mitsui E&S Shipbuilding, and the City of Yokosuka will establish autonomous ship technology through this pilot project, towards the goals of providing solutions to the shipping industry and achieving a safe and sustainable society.

(\* ) The ship crew will be standing by onboard to ensure the security of the operation.

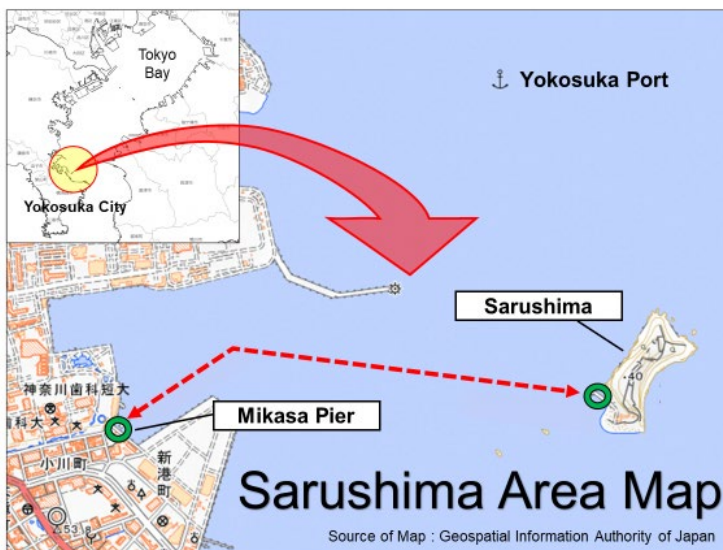
<Role of each company in the consortium>

- ◆ Marubeni  
Leading the consortium as a project manager by monitoring the schedule of the project as well as issues arising during the pilot project. After the completion of the Proof of Concept, Marubeni will try to commercialise the business of autonomous ships domestically as well as internationally.
- ◆ Tryangle  
The owner and operator of the ship to be used for the Proof of Concept, supporting the autonomous operation of the vessel retro-fitted with the technology.
- ◆ Mitsui E&S Shipbuilding  
Developing and providing key elements including autonomous ship technology and automated berthing technologies. Developing the retro-fittable technology for a small craft, which tends to be difficult to maneuver precisely.
- ◆ City of Yokosuka  
Providing the administrative support under the framework of the “Yokosuka × Smart Mobility Challenge” – the collective initiatives to solve local issues through collaboration among the public, academic and private sectors.

<Ship to be used for the Proof of Concept and Area Map>



※Tryangle-owned small passenger boat.



※Approximately 10-minute voyage from Mikasa Pier to Sarushima Island (approximately 1.7 km)