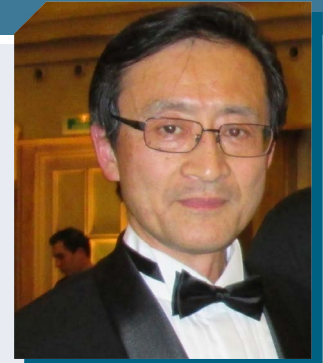


# Title Abstract: A decision support tool based on the collision avoidance algorithm for autonomous ships

By: Mr Koichi NISHIMURA | TST Corporation

Contact e-mail: [knishimura@toyoshingo.co.jp](mailto:knishimura@toyoshingo.co.jp)

He graduated from Tokyo University of Mercantile Marine in the faculty of navigation in 1981. After graduating university, he joined TOKYO KEIKI INC. which is one of the leading manufacturers of navigational equipment in Japan. He involved in a wide range of product developments not only navigational equipment but VTS system integration. In 2018, he joined TST Corporation which provides information services for the purpose of safety of navigation and contributes a lot to the efficiency of port operation in major ports in Japan. He holds a CTO position in TST Corporation.



## Abstract:

According to IMO Resolution A.857(20) Vessel Traffic Services are implemented to improve the safety and efficiency of vessel traffic and to protect the marine environment. The service should have the capability to interact with the traffic and to respond to traffic situations developing in the VTS area. Decision support is a way to help VTS personnel make decisions in routine or non-routine situations. It is especially useful for VTS personnel facing decisions about developing situations or emergency situations. Decision Support Tools (DST) are used in VTS centres to enhance situation awareness by assisting VTS personnel. These tools can assist VTS personnel decision making activities at operational, tactical and strategic levels.

Research on an autonomous ship has been actively conducted in recent years. This subject is obtained by a direct application of the automatic collision avoidance algorithm for the purpose of autonomous, unmanned or remotely controlled ships. The DST constantly calculate optimal maneuvering way from the risk and economic preference in the ship maneuvering space where the course change and deceleration are performed. The DST notifies the traffic situations including the risk of collision to a VTSO operational, tactical and strategic levels in order to take proper action. Practical effectiveness of the DST was tested using a full mission simulator and implemented at real VTS site.