New International Instrument to Address Autonomous Vessels

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In May 2021, a regulatory scoping exercise to analyse key ship safety treaties with respect to how Maritime Autonomous Surface Ships (MASS) are to be regulated was completed by the International Maritime Organization (IMO).

The regulatory scoping exercise, initiated in 2017, and led by the MASS Working Group within the Maritime Safety Committee (MSC, the IMO's senior technical body), was seen as an important first step to ensuring regulation keeps pace with the technological advancement in the maritime sector resulting from autonomous vessels. The exercise had involved assessing certain IMO treaties dealing with safety, collisions, loading and stability, training of seafarers and fishers, search and rescue, tonnage measurements, safe containers and special trade passenger ship instruments. From these treaties, the exercise sought to identify which provisions would:

- apply to MASS and prevent MASS operations
- apply to MASS but do not prevent MASS operations and so require no action
- apply to MASS and do not prevent MASS operations but may need to be amended or clarified, and/or may contain gaps
- have no application to MASS operations.

These provisions and their assessment were considered in the light of the IMO's classification of the varying degrees of autonomy:

- Degree One - crewed ship with automated processes and decision support
- Degree Two - remotely controlled ship with seafarers on board
- Degree Three - remotely controlled ship without seafarers on board
- Degree Four - fully autonomous ship.

At the MSC's 103rd session, it was reported that the review had identified a number of key issues, primarily focusing on the requirement to develop MASS terminology and an internationally agreed definition of MASS. It was also found that clarification would be needed for the terms "master", "crew" or "responsible person", especially where MASS are operating remotely without seafarers on board or fully autonomously (i.e. Degrees Three and Four). At present, the treaties expect all of these individuals to be onboard the vessel.

Other key issues identified for future consideration included addressing the functional and operational requirements of the remote-control station or centre and whether a remote operator should be designated as a seafarer. The MSC also noticed that there were a number of common gaps and themes between safety treaties which related to provisions containing manual operations and alarms on the bridge; provisions related to actions by personnel, such as firefighting;

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watchkeeping; implications for search and rescue; and information required to be on board for safe operation. Again, the current position assumes that seafarers will be onboard the vessel.

Having reviewed the outcomes of the regulatory scoping exercise, the MSC concluded that the best way to address MASS is through a goal-based MASS instrument, rather than equivalences provided for by the instruments or developing interpretations or amending existing instruments. It is suggested that the new instrument could take the form of a code containing goals, functional requirements and corresponding regulation for all the different degrees of autonomy while also addressing the gaps identified in the scoping exercise. We look forward to further details on this new instrument including the timetable for its preparation.

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