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| **From**: VTS Committee | ###### |
| **To**: ARM Committee  ENG Committee  ENAV Committee  MASS-TF |  |

LIAISON NOTE

Implications of MASS from a VTS Perspective

# INTRODUCTION

The VTS Committee commenced work on *Task 1.2.5 –* *Implications of MASS from a VTS Perspective* in March 2021. Key elements include:

1. Prepare a discussion paper to:
   * Assist the Committee achieve a common understanding of MASS and its implications on the provision of VTS by clearly and concisely identifying:

* Trends and opportunities presented by MASS.
* Issues / challenges for the management of ship traffic in a VTS area.
* Options, policies, and strategies for VTS to embrace / influence MASS.
* Implications for the regulatory and legal framework for VTS.
* Implications for IALA Standards relating to VTS.

The advent of MASS will be ongoing for many years and it is intended that this document will be reviewed and updated, as appropriate by the VTS Committee. Further, it is not the intention for this document to address the issues/implications identified. This will be achieved through new/amended work programme tasks adopted by the Committee.

* Facilitate strategically planning for MASS and ensure VTS continues to contribute to safety of life at sea, safety and efficiency of navigation and the protection of the environment within the VTS area by mitigating the development of unsafe situations.

1. Provide guidance to assist authorities ensure the safety and efficiency of vessel movements in the VTS area, recognising:

* The advent of MASS and their interaction with conventional manned vessels within VTS areas.
* The interaction process of autonomous vessels with conventional traffic.
* The information flow between MASS and shore authorities; and
* The related information exchange with conventional traffic.

# DISCUSSION

Key outcomes to date in progressing this task include:

1. ***Discussion Paper*** – Key components of the document include:

* *Issues / Challenges for The Management of Ship Traffic in a VTS Area*

The advent of MASS will present issues and challenges for VTS operations and will undoubtedly contribute to major changes to how VTS interacts with participating ships and manages ship traffic to ensure the safety and efficiency of ship movements by VTS. This section explores these and the implications for VTS.

To assist in developing the Discussion Paper at VTS52 a session to explore ‘operational requirements’ for managing ship traffic and the interaction between VTS, ships (both conventional and autonomous), allied services and RCCs through mix of traditional VHF voice, digital communications, and automated data exchange.

Highlights from the session include:

* *A key principle in transitioning to a digital environment is ensuring the intent of messages conveyed to actors, including allied services, is the same, irrespective of the technology used to deliver it (e.g., voice/digital/automated data exchange).*
* *The principles of many of today’s reporting requirements / interactions will still be required (e.g., entry report, permission to proceed, route deviation) in transitioning, however the contents, details and method of delivery will evolve. The concepts of handshaking / confirmation associated with responsibilities / expectations will remain.*
* *There is a compelling need for a global standard for digital communications and automated data exchange to ensure a successful transition to a digital maritime world and managing ship traffic comprising both conventional and autonomous ships. Specifically, this includes structure, format syntax and the defined elements.*
* *The transition to digital communications and automated data exchange offers opportunities for more efficient interaction / transfer of information and data to minimise the burden on the entity responsible for the navigation of the ship in transiting VTS areas and between VTS areas.*
* *As the transition commences there is a compelling need to explore and adopt strategies to:*
  + - *Ensure a global standard for digital communications and automated data exchange is achieved*
    - *Ensure the requirements to manage ship traffic in the changing environment are clearly and concisely articulated and communicated.*
    - *Consider and define automation at a VTS to enable the management of a mix of traditional VHF voice, digital communications, and automated data exchange between shore and ‘ship’, allied services, RCCs and other stakeholders.*
    - *Consider possible changes to the role / function for VTS and other services.*
* *As we transition from the traditional means of vessel navigation, management of ship traffic and communications, to more highly automated means of voyage planning, digital data exchange, and MASS, it is recognized that the role of human operators will change.* 
  + - *The success of future operations within this evolving marine ecosystem will require building trust between human operators and the new levels of automation. It will therefore be essential that new roles, tasking, and work process defined for human operators include methods for building trust during the development, testing and deployment of MASS and other highly automated systems.*
* *There is a rapidly emerging need for the VTS community and IALA to engage in the change process occurring and the development of the road map for MASS commencing at the IMO to communicate the functional / operation requirements to manage ship traffic and the interaction between VTS, ships (both conventional and autonomous), allied services and RCCs through mix of traditional VHF voice, digital communications, and automated data exchange.*

The report from the session is at *VTS52-XXX WG1 - Report from TG1.2.5 and TG1.4.3 Joint Session*.

1. ***Case Studies*** - The ongoing use of ‘Case Studies’ to assist gaining a greater understanding of MASS and its implications by monitoring their development/outcomes and identifying opportunities for involvement/engagement. A copy can be download from - <https://www.iala-aism.org/technical/mass/>
2. ***Preparation of Guidance*** - Work on the preparation of guidance as part of Task 1.2.5 has been paused, recognising:

* The draft road map for the development of a goal-based instrument for MASS to be considered by the IMO Maritime Safety Committee at MSC105 (*MSC 105/7*).
* The development of the Discussion Paper.
* The consideration of ‘Case Studies’.
* Existing guidance available for MASS trials such as:
  + The IMO Interim Guidelines for MASS Trials (MSC.1/Circ.1604).
  + EU Operational Guidelines for Safe, Secure and Sustainable Trials of Maritime Autonomous Surface Ships (MASS).
  + MASS UK Industry Conduct Principles and Code of Practice.

# ACTION REQUESTED

The committees and the MASS TF are requested to note the progress associated with *Task 1.2.5 – Implications of MASS from a VTS Perspective* to date and provide comment as appropriate.

# ENCLOSURES

* *VTS52-X.X.X WP TG.1.2.5 Discussion paper - Implications of MASS from a VTS perspective (as at VTS52).*
* *VTS52-XXX WG1 - Report from TG1.2.5 and TG1.4.3 Joint Session.*