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| From: ARM | PAP56-3.4.1 |
| To: PAP | 10 October 2024 |

**LIAISON NOTE**

ARM SUGGESTION FOR FUNCTIONAL CAPABILTY DEFINITIONS of AtoN

# Summary

As the maritime environment becomes more digitised, the role of AtoN is likely to include increasing connectivity with, and participation in, data networks. With the complexity of AtoN design likely to increase, consideration might need to be given to establishing Functional Capability Definitions for AtoN to assist members/Coastal States in defining design requirements. This is not a proposal for a new type of AtoN.

## Purpose of the Document

To seek guidance from PAP as to whether defining the Functional Capability of AtoN would benefit AtoN Service Providers/IALA members by supporting the risk assessment process.

# Background

The ARM MASS working group has been considering an input paper from China MSA on the potential categorisation of AtoN based on their ability to interactwith, and be used by, MASS. The proposal included six categories and sought to:

* Help with assessing the merits of, and planning for, various levels of interaction between AtoN and MASS (taking into account degree of risk and volume of traffic).
* Support the Coastal State/Service provider risk assessment process (taking into account the degree of risk and volume of traffic).
* Provide a logical process for evaluating AtoN capabilities that may support engineering solutions and financial planning.

# Discussion

## Working Group Development of the China MSA Proposal

The introduction of MASS into Coastal State operations will require an assessment of existing physical and electronic AtoN in terms of:

* Whether their positioning, size, type and characteristics remain appropriate.
* How much they may interact with, and are used by, all vessels.

In addition to the benefits of introducing Functional Capability Definitions identified by China MSA (above) the group also consider whether such definitions would also assist Coastal States/Service providers with engineering design (e.g. standardisation/modularity) and with improved asset planning/costing/budgeting.

## Applicability to MASS

Noting that the China MSA proposal linked different Functional Capability Definitions to interaction with MASS, the group felt that the increasingly digitised environment that AtoN will be operating in means that such definitions would have applicability not just with MASS, but across all vessels. As a result the decision was taken to remove Functional Capability Definitions from the MASS paper and ask PAP whether the concept is one that might be developed across all committees.

## Functional Capability Definitions

The following definitions have been discussed so far.

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| **Designation of Functional**  **Capability (FC)** | **Operational Mode** | **Functional Capability** | **Description** | **Degree** |
| FC1 | Non-Intelligent | Size, shape, structure, colour, topmark, light only. | Basic AtoN. | 1 |
| FC2 | Remotely Monitored. | As above plus the AtoN can be remotely monitored including operating status, position and energy levels. | Basic AtoN that is monitored remotely. This can include AIS and RACON for example. | 2 |
| FC3 | Remotely Monitored Plus | Remote monitoring allow management of operating status including lamp (emergency/normal), position and energy levels and characteristics. | Basic AtoN that can be monitored /controlled and managed remotely. | 2 |
| FC4 | Interactive | Telemetry allows monitoring and management of operating status including lamp, position and energy levels and characteristics. AtoN is capable of relaying digital services. | The AtoN is part of a data network that will promulgate information (for instance through S100 | 2 or 3 |
| FC5 | Intelligent | The AtoN is capable of sensing, processing and transmitting its own data. | The AtoN is fully integrated into digital services.  The AtoN is capable of providing real time information to vessels independently. | 4 |

## Degrees

A proposal by Republic of Korea during the work group noted that applicability of the definitions to MASS operations would nonetheless remain useful and so a matrix of *Degrees* of interaction with MASS was developed:

Degree 1 - Basic AtoN that cannot provide digital information to MASS

Degree 2 - AtoN can provide digital AtoN data (S100/200) to MASS

Degree 3 - AtoN can interact with additional digital data including hydrometeorological and Traffic information etc…

Degree 4 - AtoN is capable of interacting through all the above digital data in real time.

## Wider Scrutiny

The ARM Committee notes that the work on functional capabilities would benefit from review by experts in other committees. This proposal is a first draft that the Committee feels it merits wider scrutiny and requests that PAP endorses that opportunity.

# PROPOSAL

PAP considers the merit of IALA adopting the concept of having Functional Capability Definitions.

# Action requested of the Committee

PAP is requested to:

1. Note the proposal for Functional Capability Definitions and indicate whether they consider the proposal worthy of wider discussion amongst the Committees as part of the work plan.