

## ABM WS 2 – topics and questions for the support of the discussion

(Ref: 2nd ABM WS, agenda items 4 and 5)

### Background information - ABMs

*Automated Behaviour Monitoring (ABM) tool is a computer, rule-based system analysing vessel positions for the detection and alerting of abnormal and/or user specific vessel behaviours. The aim of the ABMs is to support Integrated Maritime Service users in their maritime surveillance functions, by providing an enhanced situational awareness picture in near real-time. Currently the set of abnormal and/or user specific behaviours includes: entering an area, encounters at sea, close approach to shore or an area, sudden changes in heading, speed or reporting frequency; are operationally used. When specific, user-defined criteria are met, operators can be automatically alerted via warnings in the graphical interface (IMS- IMDatE WUP) and by means of e-mail notifications (to the defined distribution lists). The technology currently used, obliges the user to select: the type of event to be detected (ABM type/ algorithm), in addition to the Area of Interest (AOI), Vessels/Targets of Interest (TOI) and the time definition.*

### List of topics for the definition of requirements

What should be the capabilities of the ABMs in the future (in terms of vessels, areas, and timeliness)?

- **Selection of Vessels - Targets of Interest (TOI)**
  - What is the average and maximum number of TOIs to be selected for a single ABM instance (by flag, by specific list, etc.)?
    - Average:1. Maximum: 5 (depends on the anomaly specified)
  - The current TOI (vessels) selection criteria are: Flag, Identity (specific vessel or a list of vessels) as well as the PSC ship type. Are these sufficient? Are there any other criteria needed? If so, can you define them?
    - Source (VMS, AIS (Terr/Sat) etc.)
    - In a closed and secure system, used for control and law enforcement, selection criteria should also be latest control (date, time, result etc.), ongoing investigation etc.
  - Should the list of TOI be importable? From which file format?
    - Yes, but we have no suggestion on the best format to use.
  - Would you like to detect specific behaviour of a single ship, but globally (in the area covered by the position reporting systems)?
    - Yes
- **Area of interest (AOI) definition**
  - What is the average and maximum AOI needed for a single ABM instance (in square Nautical Miles - NM)?
    - Average, approximately
  - Definition of the AOI – should it be: manual, or via import (file formats), pre-defined areas to be selected in the interface?
    - Manual
  - Locations of the AOI – would they be located in the EU, non-EU (specify if it concerns EU MS foreign territories, other countries, seas/oceans)?
    - World-wide, in relation to IUU and EU vessels operating outside EU waters,
  - Do you foresee a need for excluding port areas from the AOI in the ABM (e.g. some situations like close approach to shore or at sea encounters, are routine in the port areas)?
    - No
- **Timeliness of the ABM detection and the related alerting**
  - What should be a time for detection of the situation (behaviour) in a single ABM?
    - E.g. a situation/ event are detected up to 12 NM off the coast. What should be the time for alert generation (from the moment the position report is received at EMSA)?
      - < 30 minutes

- As above, but more than 12 NM off the coast?
      - < 60 minutes
    - As above, but more than 1000 NM from the EU coast (overseas)?
      - < 2 hours
  - What is an average/ typical time when an ABM remains active?
    - 0 minutes – 2 hours
- **Expected rate of positions to detect specific situations/algorithms**
  - (TOI- vessel) In Area: should ABM module be checking for all position report messages, or maybe every 6 min? Less than 6 minutes? More than 12 minutes? Define expected frequency.
    - As often as possible
  - Distance to Shore: same as above
    - As often as possible
  - At Port At Sea: same as above
    - As often as possible
  - Encounter at sea: same as above
    - As often as possible
  - Under over reporting: same as above
    - As often as possible
- **Distribution lists – i.e. to which email addresses the ABM related alerts are sent**
  - What is the average and maximum number of recipients within an ABM alert distribution list (please specify an average number of users who should be typically alerted by email)?
    - Average: 2. Maximum: 56 (2 in each member state)
  - Should it be possible for the national ABM administrator to create distribution lists for the ABM related alerting (for the moment this action requires EMSA's intervention)?
    - Yes
  - Would you prefer to keep only registered users (and their emails) on the distribution lists, or to add any email (non-registered users) to the list?
    - Only registered users
- **Acknowledgment of the alert**
  - How should the acknowledgment of the alert look like in the graphical interface presenting the ABMs?
    - No proposal
- **ABM admin functions at national level**
  - Do you expect to have more than one ABM admin (person acting as a point of contact and setting the ABMs in each country)? If so, how many?
    - Yes, at least 2.

## ABM System-to-System (S2S) aspects

*Note: Assumption is that the detection of particular situations is made at the ABM platform level and the related alerting is delivered via S2S interface*

- **ABM alerting – What would be a typical content (attributes) of the ABM related alerts?**
- Elements/ attributes of the alert
  - Type of the situation detected
  - Position/ Place mark
  - Area (AOI)/ Map of the AOI
  - Ship identification
  - Time of the detection
  - Time of the reporting
    - Not sure what we should respond to this. We agree to proposed answer in the bullets above.

- Alerts delivery to the external system
  - o What should be the applicable standards and preferences for delivering alerts to external systems (email, WFS, xml pushed, CAP, Twitter, SMS)?
    - Email (as secure as possible)
  - o Is it possible to deliver the alerts via 'Twitter' or other social media?
    - Depends on the alert. Accidents, risks etc.: yes. Law enforcement/control related; no.

**Other aspects – SEG (Future single graphical interface to all EMSA systems) / IMS App (Mobile Phone/ Tablets application and the ABM alerts**

- IMS App
  - o For the moment the alerts for the active ABMs are presented in the App, per user.
  - o It is planned to geo-locate them on the map.
  - o Are there any other aspects to be considered for the IMS App?
    - No comment from our side at this stage
- SEG
  - o Shall the SEG admin tool be operated/ integrated within the SEG interface?
  - o Alternative solution is to maintain the ABM admin tool separately.
    - Without being completely sure of the consequence, we would propose to keep it separately.

**Use cases, based on operational experience/ active ABMs**

Below are typical, or most popular, use cases for the ABMs usage. Can you think about any other situations to be detected?

Detect encounter at sea (rendezvous between two ships) in a 25 square nautical miles area of interest (for safety, security or other reasons)
Detect when specific fishing vessels (trawlers) enter in the areas where the fishing is forbidden
Detect all the ships entering into a Traffic Separation Scheme
Detect tankers which are passing via an area (e.g. where navigation may be considered dangerous in certain conditions)
Detect vessels which are approaching less than one nautical mile (NM) to the coast
Detect vessels which are entering in an area closed for navigation at specific time
Detect when a specific ship enters the EEZ or territorial waters of a country
Detect when vessels are anchoring in a specific area
Detect vessels leaving specific port areas (Port area is set 5 km around the UNECE LOCODE location of the port)
Detect vessels that are operating outside normal procedures in a traffic lane.
Detect vessels that are going over the maximum speed limits in sensitive areas.