

Potential Machine Learning scenarios in IMS— further discussion

IMS UCM 16.4.1

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- **Why?**
- **Where this could help?**
- **Further plans**

EMSA's single programming document 2020-2022 and EMSA's 5-years strategy

*'[...] further development of the ABM tools and the analysis of which “**big-data**” analytics techniques and products can support the IMS community [...]'*; and

*'[...] development of **machine learning and artificial intelligence applications** in order to **improve risk assessment, vessel position predictability, statistics and innovation**'.*

*[...] using the potential of **automation** or Artificial Intelligence*

*[...] **intelligent tools** and service*

Overall objective of the Artificial Intelligence (AI)

Support, reduce workload, find the right information for decision-making, automatize labour-intensive processes, predict developing or dangerous situations

Involve stakeholders in the discussion on the business scenarios and potential developments

Validate scenarios – follow up of the ABM WS6

Confirm the scenarios or identify new ones

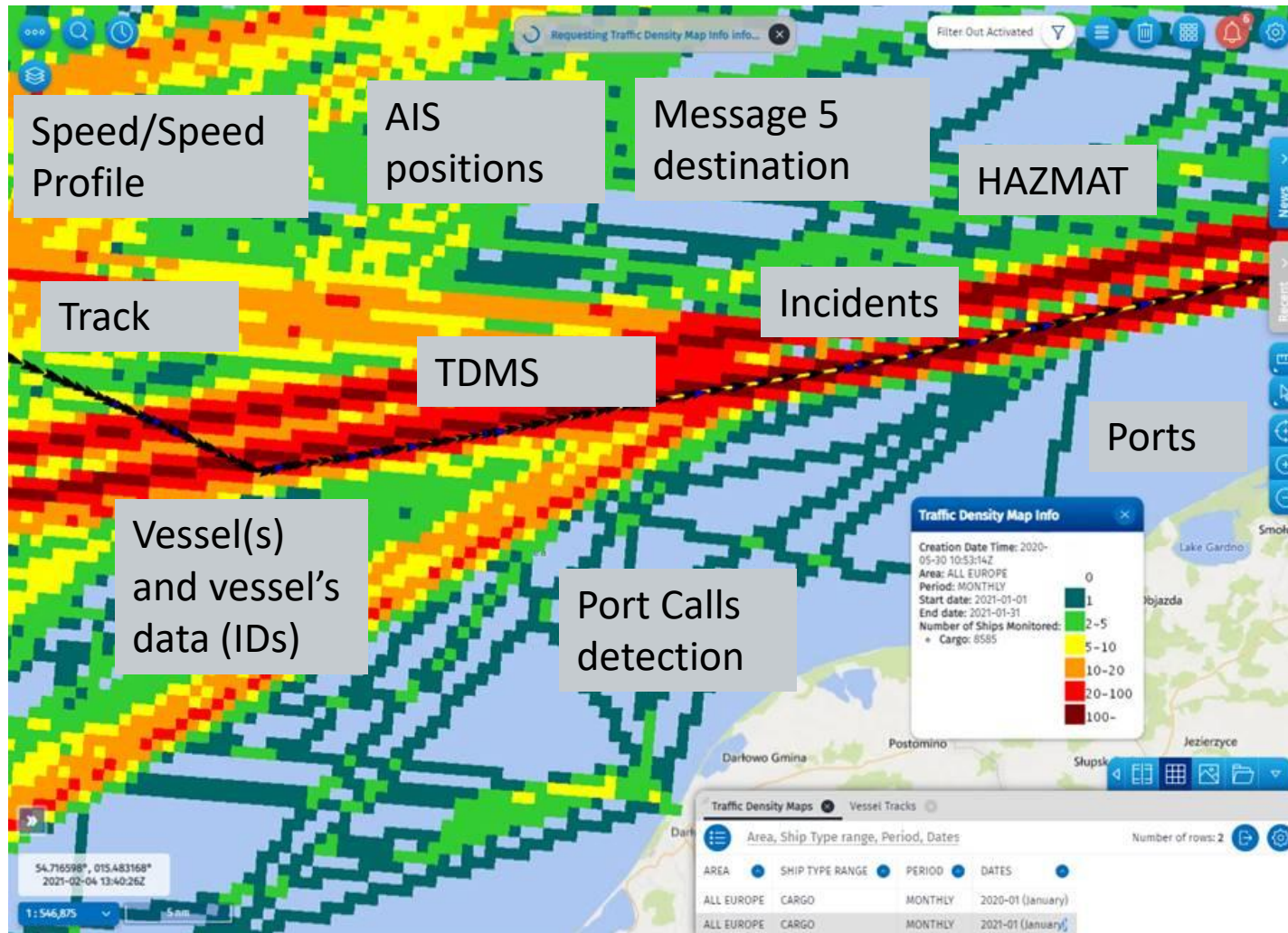
What data (other data) sets could be used? Where EMSA could support? VTMIS, Coast Guard functions, Risk Assessment

Legal context: Dir. 2002/59/EC, as amended. + EMSA Founding Regulation and TWA

Core objectives:

- Verification of the reporting of incidents and accidents at sea
- Identification of ships posing a potential hazard to shipping/ potential risk
- Monitoring of the compliance of ships with vessel traffic services/ IMO, SOLAS- AIS and LRIT
- Verification of the obligation of the ship as regards the reporting of the destination/arrival/port call
- Support to CG functions/ Support to Risk Assessment

Data sets available



Potential, added-value

- Prediction
- Automatizing of the verification of the reported data or the notifications' information (e.g. is there a potential for checking ATA?)

The following priorities were identified:

- Recognition of similar trading patterns;
- Discrepancy destination vs. route taken;
- Vessel not following recommended routes/ TSS-es;
- Deviation from the usual route;
- Detection of the non-viable economic activity;
- Analysis/mapping of offshore activities;
- Mapping of close quarter situations or density of anomalous behaviors;
- New scenario/functionality allowing visualization of tracks and the references to specific activities registered/detected;
- A tool/functionality for the configuration and automatic assignment of the vessel risk, based on the static (e.g. GT, LOA) and dynamic data sets (tracks, events) associated to the ship(s).

Consultancy/ Report on the potential AI and ML requirements, demo and consultancy

Objective: how to reach the AI and ML in IMS

- **Take note of the current scenarios discussed**
- **Analyse scenarios**
- **Communicate them to EMSA (ABM WS 7 and UCM#17)**

Volunteers are needed



- Further validation of the scenarios for AI and ML.
- Sharing any AI and ML developments or experience.



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