

EU & EMSA UPDATE



4th UK MASRWG Conference - 17th and 18th January 2019

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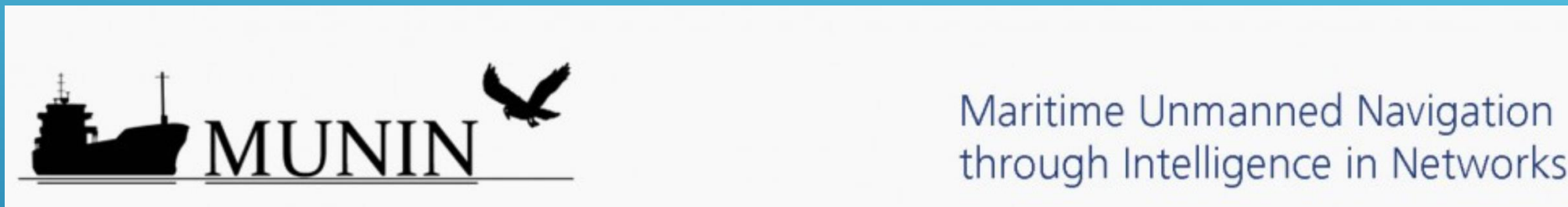
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EU & EMSA ROLE

EU RESEARCH AND STUDIES

➤ MUNIN RESEARCH PROJECT



- The project MUNIN – Maritime Unmanned Navigation through Intelligence in Networks – is a collaborative research project, co-funded by the European Commissions under its Seventh Framework Programme.
- MUNIN aims to develop and verify a concept for an autonomous ship, which is defined as a vessel primarily guided by automated on-board decision systems but controlled by a remote operator in a shore side control station.

Key facts about MUNIN

Scope:

- Feasibility study
- Test-bed development

Budget:

- Total: EUR 3.8 million
- EU Funding: EUR 2.9 million

The Unmanned Ship web page:

www.unmanned-ship.org

Seventh Framework Programme

Grant Agreement No 314286





The MUNIN concept defines the following concepts and entities

- *An Advanced Sensor Module*, which takes care of the lookout duties on board the vessel by continuously fusing sensor data from existing navigational systems, such as radar and AIS, combined with daylight and infrared camera imagery;

The MUNIN concept defines the following concepts and entities

- *An Autonomous Navigation System, which follows a predefined voyage plan within certain degrees of freedom to adjust the route in accordance with legislation and good seamanship autonomously, e.g., due to arising encounter situations or significant changes in weather;*

The MUNIN concept defines the following concepts and entities

- *An Autonomous Engine and Monitoring Control system, which enriches the ship's engine room and propulsion automation systems with advanced failure predetection and handling functionalities while keeping the optimal efficiency and taking care of the additionally installed pump-jet acting as a rudder and propulsion redundancy;*

The MUNIN concept defines the following concepts and entities

- *A Shore Control Centre*, which continuously monitors and controls the autonomously operated vessel after it is being released by the on-board crew of skilled nautical officers and engineers. It comprises amongst others the certain positions:

The MUNIN concept defines the following concepts and entities

- *A Shore Control Centre Operator, who monitors the safe operations of several autonomous ships simultaneously from a cubicle station and controls the vessels by giving high level commands, e.g., updating the voyage plan or the operational envelope of the autonomous system;*

The MUNIN concept defines the following concepts and entities

- *A Shore Control Centre Engineer, who assists the operator in case of technical questions and who is in charge of the maintenance plan for the vessels based on a condition-based maintenance system ensuring sufficient reliability of the technical system for the next voyages;*

The MUNIN concept defines the following concepts and entities

- *A Shore Control Centre Situation Room Team*, that can take over direct remote control of a vessel in certain situations via a shore side replica of the unmanned vessel's bridge including a *Remote Manoeuvring Support System* that ensures an appropriate situation awareness in direct control despite of the physical distance of crew and vessel.

EU-Funded Project to Enable Autonomous Navigation in Close Proximity Is Advancing

Hull to Hull (H2H) was established in November 2017 to develop technical solutions for safer navigation in close proximity of other stationary or moving vessels and objects.



RESEARCH & INNOVATION

Participant Portal

European Commission > Research & Innovation > Participant Portal > Opportunities

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TOPIC : The Autonomous Ship

Topic identifier: MG-3-2-2018

Publication date: 27 October 2017

Types of action: IA Innovation action

DeadlineModel: two-stage

Opening date: 31 October 2017

Deadline: 31 January 2018 17:00:00

2nd stage Deadline: 19 September 2018 17:00:00

Time Zone : (Brussels time)

COMMISSIONER BULC

**Speech by Commissioner Bulc at the
Conference Strengthening maritime
transport through new technologies.
Autonomous shipping: the key to the
future**



European Maritime Safety Agency

EMSA'S ROLE



European Maritime Safety Agency

DEPT. B / SAFETY AND STANDARDS

DEPT. C / OPERATIONS

EMCIP DATA BASE

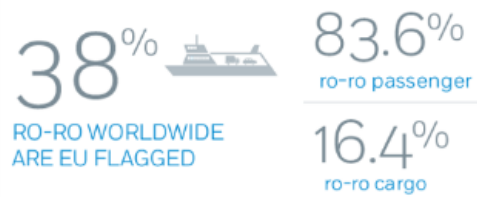
LEARNING FROM ACCIDENTS THROUGH EMCIP



What can we learn from the analysis on ro-ro ships?

RO-RO SHIPS

Ro-ro ships are one of the most common types operating today since they offer flexibility and the possibility to integrate the maritime segment with other transport modes, facilitating the efficiency and fast execution of embarking/disembarking operations



GATHERING & ANALYSING THE DATA

Ro-ro data extracted from the European Marine Casualty Information Platform from 2011 to 2018.



Top 3 safety areas investigated



TOP FINDINGS OF THE RO-RO SAFETY ANALYSIS

WORKING PRACTICES

The incorrect implementation of procedures such as those for mooring, navigation and watchkeeping is often identified as a contributing factor to accidents. Miscommunication is another frequent contributing factor, such as that between the bridge and the garage during the loading/unloading process.



SITUATIONAL AWARENESS

A lack of situational awareness in bridge operations is a frequently reported problem which can lead to navigation casualties, like grounding or collisions. Safe navigation requires the proper collection, processing and prioritisation of information from many sources.



SAFETY ASSESSMENT & PLANNING

Assessing risks before starting an operation is a critical step as this a key contributing factor to occupational accidents. Examples are frequently found in loading operations with forklift trucks, maintenance works by crew in enclosed spaces and navigational planning when entering a port.



DESIGN & ERGONOMICS

Low safety standards in hardware design are a common contributing factor to accidents, such as a missing safety barrier at the top of an hydraulic oil tank for example. Poor appliance and infrastructure ergonomics means that crew members will not be able to perform their duties as efficiently as they should. The design of a bridge and its appliances is an often cited problem.



SECURING VEHICLES

Inadequate procedures to load and secure vehicles as well as to ensure they disembark safely from a ship's ramp is another common contributing factor.



FAMILIARISATION

A lack of familiarisation with the ship, its characteristics and the duties assigned is another area of concern. An inexperienced master may run into difficulties when trying to anchor a ship in adverse weather conditions - a situation which can lead to the grounding of a ship.

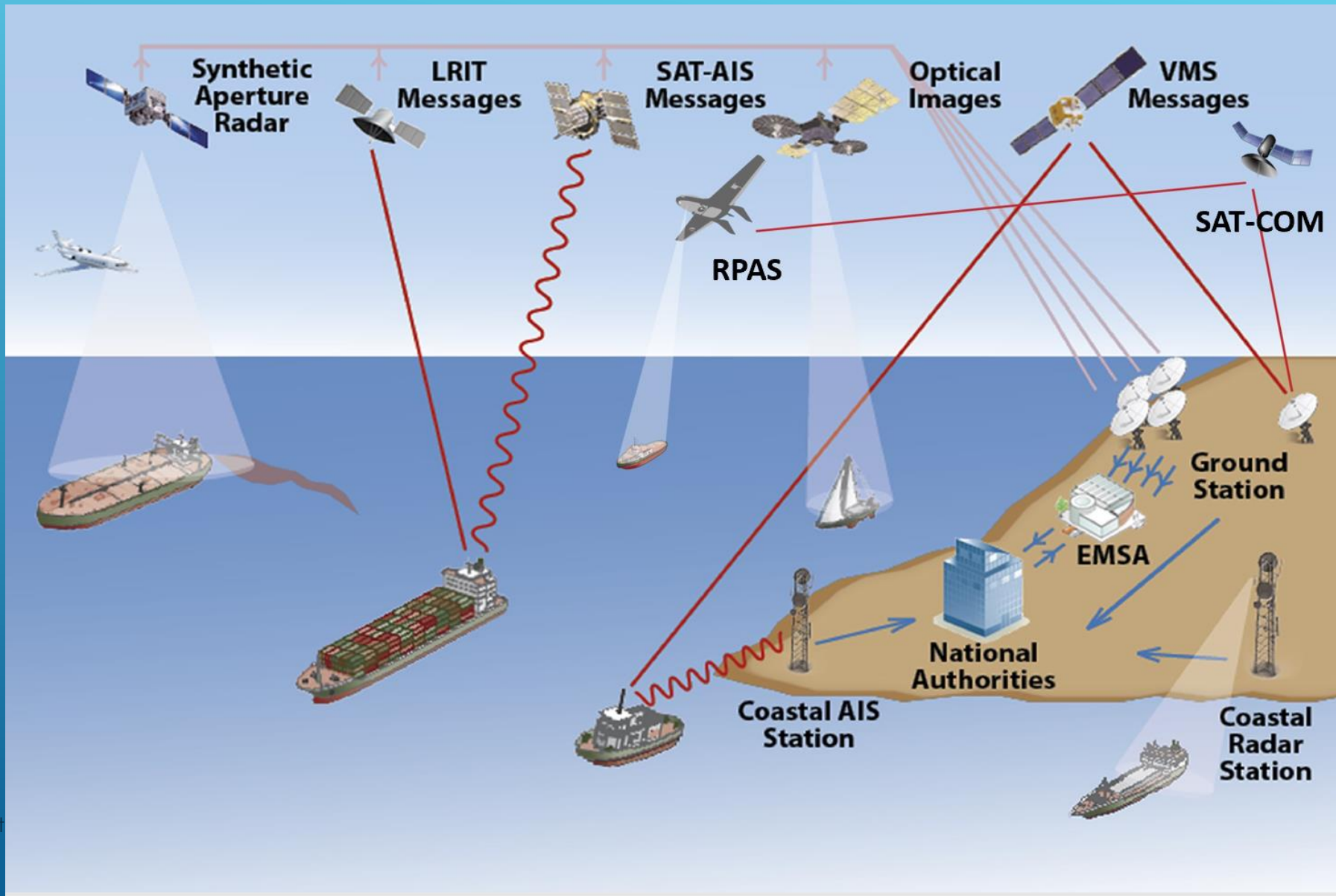


SAFETY RECOMMENDATIONS

The safety recommendations mainly targeted reinforcing the safety barriers for fire detection, fire-fighting, nautical conduct and cargo operations.



MULTIPLE SOURCES FOR THE MARITIME PICTURE AND SITUATIONAL AWARENESS



COMMISSION ACTIONS / DG MOVE

Details	Additional Information	Meetings	Subgroups	Statistics	Members
Name: High Level Steering Group for Governance of the Digital Maritime System and Services (E03450)					Active
Abbreviation: HLSG GDMSS					
Policy Area: Transport					
Lead DG: MOVE - DG Mobility and Transport					
Type: Formal, Permanent					
Scope: Limited					
Mission: To assist the EC on maritime transport questions (see tasks Commission Decision of 11 April 2016 (OJ L96/46 12.04.2016))					
Task:					
Assist the Commission in relation to the implementation of existing Union legislation, programmes and policies					
Assist the Commission in the preparation of legislative proposals and policy initiatives					
Coordinate with Member States, exchange of views					
Provides expertise to the Commission when preparing implementing measures, i.e. before the Commission submits these draft measures to a comitology committee					
Contact: MOVE-ENER-MAIL@ec.europa.eu					
Publication in RegExp: 06 Sep 2016					
Creating Act: Commission Decision of 11 April 2016 (OJ L96/46 of 12.04.2016) establishing the high-level steering group for governance of the digital maritime system and services and repealing Decision 2009/584/EC					
Last updated: 13 Dec 2018					

1st Meeting of the Ad Hoc expert sub-group under the High Level Steering Group (HLSG) on Autonomous Shipping and VTS

- 1. Establishing testing area – where?
- 2. Establishing testing area – what are the technical requirements?
- 3. Use of testing area ?

CONCLUSIONS

- ▶ **EU has provided funding to several research projects**
- ▶ **New calls under way**
- ▶ **Horizon 2020 funding**
- ▶ **New budget frame / MFF 2021 – 2027**
- ▶ **DG MOVE established Ad Hoc expert subgroup**
- ▶ **EMSA working together with DG MOVE**

THANK YOU FOR YOUR ATTENTION!

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