GAMBAS
Galileo Advanced features for Maritime domain: Breakthrough Applications for Safety and Security

HORIZON 2020
Beneficiary:
GSA (European Global navigation Satellite systems Agency)
Grant Agreement:
101004292

USER NEEDS COLLECTION QUESTIONNAIRE

WP 2.5: SHIPOWNERS

Project partners

Thales Alenia Space	ThalesAlenia Space	**FRANCE**
Thales Hellas	THALES Building a future we can all trust	**GREECE**
ECA Aerospace	ECA GROUP make sure	**FRANCE**
Pildo Labs	PildoLabs move smart	**SPAIN**
Synthetica	synthetica	**GREECE**

Project Abstract

Galileo-based solutions for a better surveilled, safer and more secure sea

Maritime transportation is a backbone of the worldwide economic growth, representing 80% of the worldwide merchant traffic, and a major domain of human and nature activity.

The improvement of maritime safety and security has always been a major concern for the global community, and, in the last decades, the protection of environment and the resilience to climate change effects have also appeared in the overall scope. Considering the size of the maritime domain and the potentially large distances to coasts, the GNSS is a core technology of maritime systems. Getting the best possible information from on-board GNSS receivers and more generally GNSS applications (including Search-and-Rescue payloads and short-messaging capabilities of GNSS satellites) is then beneficial to the maritime community for a minimum additional investment. Galileo system is bringing new assets and functionalities, in particular compared to other GNSS constellations, which appears to be particularly relevant for the maritime community.

The objective of the GAMBAS project is to highlight how Galileo specific features can benefit to maritime domain, to propose implementations and to support demonstrations and disseminations of associated services, for the benefit of maritime domain in terms of security, safety, detection of illegal activities, protection of environment and resilience to major catastrophic events.

The project will in particular address the modernization of SSAS Cospas-Sarsat anti-piracy beacon, with unique Galileo return-link features, and the development of solutions for rescue operators and for the vessels to use Galileo robustness to jamming and spoofing (including authentication) and the expected future Emergency Warning Service. The solution will be supported by demonstration at sea, in Europe (Greece and Spain) and eventually outside Europe.

The questionnaire below aims at collecting & understanding the needs of shipowners.

The estimated time to fill this questionnaire is approximately: 25-30 mins

Personal information

The protection of your personal data is of high importance to GAMBAS partners; therefore, we take all reasonable care to ensure that your personal data is processed safely.

When filling this questionnaire, you may share some personal data with GAMBAS partners, and Thales Alenia Space (Toulouse) will be acting as Data Controller.

Please note that, in order to carry out the processing activities specified therein, GAMBAS partners rely on your consent, which you can withdraw at any time, without affecting the lawfulness of processing based thereon before its withdrawal.

Data collected through this questionnaire is to be used only inside GAMBAS project framework and accessible to project team members and GSA (European GNSS Agency), all inside European Economic Area.

It is not subject to any communication, transfer or disclosure to third parties, without prior written consent (extra from the present consent) of the user concerned/involved/replied.

The provision of your personal data is Optional.

The records are kept in printed and/or electronic format for the duration of the GAMBAS project (up to end of June 2023).

Please note that you have the right to access your personal data and to request that your personal data be rectified or deleted. You are also entitled to request restriction of the processing of your personal data. In addition, you have the right to ask for receiving, in a structured and standard format, your personal data that you provided to GAMBAS team.

In case of any request or complaint, please send an email to kevin.salsac@thalesaleniaspace.com. You can also contact our Data Protection Officer by sending an email to the following address: dataprotection@thalesgroup.com. In any case, you also have the right to lodge a complaint with the competent data protection authority.

By checking "yes", you confirm your agreement with above terms concerning the management of the data supplied in the present questionnaire.

YES ☐

ID (Received through Email):

Company:

Position in the company:

Years of experience in the Maritime industry:

1 Company Information

1.1 In which sectors of maritime operations is the company involved?

_____

_____

1.2 How many vessels (and what type) does the company owns / manages?

_____

_____

1.3 Which geographical areas does the company operate? Are there any specific trade routes most frequented?

_____

_____

1.4 Where are the company's headquarters located? Are there any additional facilities?

_____

_____

2 Operational Information

2.1 What is the probability of a vessel encountering each of the below emergency situations?

	Low	Medium	High
Piracy:	☐	☐	☐
Technical Issue:	☐	☐	☐
Weather Conditions:	☐	☐	☐
Other Vessel in distress:	☐	☐	☐
Collision:	☐	☐	☐
Other (Please precise):	☐	☐	☐

Other: _____

2.2 Please describe a typical scenario, and relevant procedures associated with each emergency situation.

Piracy:

_____

_____

Technical Issue:

_____

_____

Weather Conditions:

_____

_____

Vessel in distress:

_____

_____

Collision:

_____

_____

Other (Please describe):

_____

_____

2.3 Are there geographical areas where the above emergencies can happen more often?

_____

_____

2.4 Is there a built-in or other designated "Citadel anti-piracy area" on the company's vessels, and where is it typically located?

_____

_____

3 Equipment Information

3.1 What type of equipment is the vessel currently equipped with in order to address these types of emergency situation (Piracy, Technical issue, Weather conditions, Vessel in distress, Collision, Other), and where are these typically installed?

_____

_____

3.2 Does this equipment interact with other vessel systems?

_____

_____

3.3 Who operates this equipment and does this person receive specific training and/or habilitation?

_____

_____

3.4 What is the approximate cost of such systems?

_____

_____

3.5 ~~What is the approximate cost of such systems~~ What are the areas where these systems can be improved?

_____

_____

~~What is the average duration of a vessel's downtime, where such a system can be installed, and how often does this occurs?~~

~~_____~~

~~_____~~

~~_____~~

~~_____~~

3.6 What is the average duration of a vessel's downtime (maintenance operation), during which such a system can be installed, and how often does this occurs?

_____

_____

4 Improvement opportunity

This section aims to get your personal opinion about how Safety and Security of your vessels could be improved thanks to the GALILEO advanced features.

These features include:

- **Returning Link Message:** The Galileo Return Link Service (RLS) is a free-of-charge global service available to Cospas-Sarsat RLS compatible beacons. The new functionality, currently offered uniquely by Galileo, enables a communication link that relays Return Link Messages (RLM) back to the originating beacon through the Galileo Navigation Signal in Space. By using RLM, several services are can be deployed:
  - **Automatic Acknowledgement:** Acknowledge signal is automatically sent back to the beacon when the alert is received by the system.
  - **Remote Beacon Activation (RBA):** In case of overdue vessel, a signal can be sent to the beacon to activate it. Then the system can start tracking the beacon.
  - **Distress Position Sharing (DPS):** The position of a beacon in distress is shared through the GALILEO Return Link with the other beacons in the same zone.
  - **Two-Way Communication (TWC):** Service allowing the sending of pre-coded questions with multiple choice and eventually short free text
  - **Self-Test:** Feature allowing a Self-Test of the system in order to validate the good functioning of the complete chain.
- **Emergency Warning Service (EWS):** Some of the new GNSS constellations, including GALILEO, allow the operators to send messages to all users in a specific area, using a specific service called EWS. For example, this feature will allow the operators to alert the users about a piracy activity in a region or adverse meteorological conditions.
- **Open Service Navigation Message Authentication (OSNMA):** As of today, all open civil GNSS signals are transmitted in the clear, conforming to interface specifications that are fully available in the public domain. That means that the signal can be simulated, forcing a false position to a specific receiver. GALILEO will include the OSNMA feature, which hardens the signal and ensures the received data belongs to a real GALILEO satellite. This feature would ensure the received position is not being faked by any means (e.g. during piracy attack, for illegal activities)

4.1 Would it be useful to have any of the above-mentioned Galileo features to improve Safety and Security of your vessels? Please order them by priority:

____ Automatic Acknowledgement
____ Remote Beacon Activation (RBA)
____ Distress Position Sharing (DPS)
____ Two-Way Communication (TWC)
____ Self-Test
____ Emergency Warning Service (EWS)
____ Open Service Navigation Message Authentication

4.2 **Automatic Acknowledgement**:

4.2.1 How this new RLS feature would improve Safety and Security for your vessels?

_____

_____

4.2.2 Do you think the Automatic Acknowledgement is important for all types of alerts/situations?

_____

_____

4.3 How would **Remote Beacon Activation (RBA)** improve Safety and Security for your vessels?

_____

_____

4.4 How would **Distress Position Sharing (DPS)** improve Safety and Security for your vessels?

_____

_____

4.5 **Two-Way Communication (TWC)**:

4.5.1 What would be the expected benefits of TWC for vessels Safety and Security?

_____

_____

4.5.2 What would be the expected risks of TWC for vessels Safety and Security?

_____

_____

4.5.3 What would be the MAXIMAL acceptable latency (from the time the Questions are sent by the SPOC to the time the Answers are received by the SPOC)?

Below 1 minute	
1 to 5 minutes	
5 to 10 minutes	
10 to 15 minutes	
15 to 30 minutes	
30 to 60 minutes	

4.5.4 Would you be interested in a "dialogue" mode with questions depending on previous answers?

From 1 (not interested) to 5 (extremely interested)	

4.5.5 Would you be interested in lists of Questions and Answers depending on the type of Beacon used?

From 1 (not interested) to 5 (extremely interested)	

4.5.6 Would you be interested in lists of Questions and Answers depending on the SAR Region in which the distress is triggered?

From 1 (not interested) to 5 (extremely interested)	

4.6 **Self-Test**:

4.6.1 Is it important to have this type of feature? Do you thing it brings robustness to the system and increase safety and security?

_____

_____

4.6.2 Do you see limitations? What would be important in order not to perturb operations?

_____

_____

4.7 Emergency Warning Service (EWS)

4.7.1 Does your company use already a broadcast system? If not, would you be interested in receiving alert messages through EWS?

_____

_____

4.7.2 What type of alert would you like to receive through EWS? For which type of events?

_____

_____

4.8 Open Service Navigation Message Authentication OSNMA

4.8.1 What means does your entity have to confirm the position of a vessel in distress? Do you have any redundant systems?

_____

_____

4.8.2 How this new feature would improve Safety and Security for your vessels?

_____

_____

5 Other

5.1 What is your opinion on the potential outcome of the GAMBAS project, and how could this outcome be improved?

_____

_____

5.2 Do you have any further comments or suggestions?

_____

_____

Thank you for your time and for your contribution to this project which is highly appreciated!