

BlueMassMed Final report

Cross-Border and Cross-Sectoral

Maritime Information Sharing
for a control of activities at sea



 **BluemassMed**
BLUE MARITIME SURVEILLANCE SYSTEM MED





BLUEMASSMED FINAL REPORT

Cross-Border and Cross-Sectoral Maritime Information Sharing for a better knowledge and control of activities at sea

BlueMassMed is a project co-funded by the European commission (DG Mare) in the framework of the Integrated Maritime Policy of the European Union. It brings together 37 agencies responsible for maritime surveillance in the 6 Member States bordering the Mediterranean and its Atlantic approaches (Portugal, Spain, France, Italy, Greece and Malta).

BLUEMASSMED has a total budget of €€3.720.524, with a maximum EU contribution of €2.191.389. The project started in December 2009 and the final report will be presented to the European commission in October 2012.



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Context

States entrust national agencies with the task of collecting, analyzing and disseminating information in order to ensure responsibilities and efficiency in maritime surveillance domain:

- Maritime Safety, Search and Rescue, Prevention of pollution caused by ships, Maritime Security
- Fisheries control
- Marine pollution preparedness and response, Marine environment
- Customs
- Border control
- General law enforcement
- Defence

A required cooperation

To improve their effectiveness, these actors need to seek and take advantage of the opportunities for enhanced cooperation, both nationally and internationally and mainly at European level.

- By sharing the maritime information they collect and operate,
- By identifying the gaps in present practiced exchanges,
- By building the proper conditions for an enhanced exchange, in safety and security.

Maritime surveillance actors will benefit from a shared situation, in a systematic way, more comprehensive and accurate.

The project

BLUEMASSMED is the first European maritime surveillance pilot project, whose objective is to catalyse and foster cooperation in maritime information sharing between 37 State partners from 6 Member States (MS) bordering the Mediterranean Sea and Atlantic approaches (Ellas, España, France, Italy, Malta, Portugal). It is co-funded by the European Commission (DGMare) and the partners.

France and Italy co-chair the Steering Group, where consensus rule applies. The SG Mer (France) acts as the Lead Partner.

First project's outcomes had a powerful footprint on the launch and development of a European "Common information sharing environment" which is an important enabling platform of the European maritime policy (IMP), promoting sustainable uses of the seas for the well-being of European citizens.

BLUEMASSMED was launched on January 2010 in Paris and will terminate in Summer 2012.

Investing and Building phase:

The Users working group debated and defined the wishable and possible fields for an enhanced cooperation on data and services exchange, aiming at allowing partners to benefit from a better overall situation, regularly spread among players, obeying rules of distribution, traceability treatment clearly established and agreed, providing security and confidence among partners. The Technical working group defined the architecture of the BluemassMed SOA (Service Oriented Architecture), translated the users expressed needs, specified the modalities of exchange (data) and the services to be delivered by the network. It also managed the test and the interoperability of the BluemassMed network.

The Legal working group explored the legal environment of present information management in the different MS and by different actors, as well as potential constraints or obstacles and the possible solutions.

A Communication working group took in charge the internal necessary mutual knowledge and external promotion of the project, then prepares the dissemination of results and proposals, especially through a demonstration and a final report.



Experimentation and demonstration phase:

The partners have the responsibility to develop national BluemassMed Demonstrators powered by their national maritime information systems, aiming at building an operational BMM cloud - a network allowing partners to exchange data and services according to accepted rules - with the aim to establish and maintain a "Shared Basic Common Maritime Picture" (SBCMP). 5 Primary nodes and more than 30 Secondary nodes constitute the BMM network enabling them to "speak the same language".



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The BlueMassmed final reporting is constituted of this synthetic report, and an extract, augmented with 4 specific thematic reports on the domains Users, Legal, Technical, Experimentation where every details on the BMM realizations can be found.

A BlueMassMed film illustrates the challenges, the awaitings, the needed perspectives seen from actors.

Readers can find on the DVD inserted in this report :

- **BlueMassMed - The film**
- **Final Report - Main document**
- **Final report - Extract**

- **Thematic Report**
“A Users Operational Perspective”
Annexes
 - Annex I: BMM Operational View Document
 - Annex II: BMM Exchange of Information Matrix
 - Annex III: BMM Operational Scenario 1, 2, 3, 4, 5 et 6, and scenario for demonstration

- **Thematic Report**
“Legal Obstacles and Solutions”
Annexes
 - Annex 1: Criminal Data
 - Annex 2: Systems
 - List of Legislation**Appendixes - National legal manual questionnaires**
 - Espana, France, Hellas, Italia, Malta, Portugal

- **Thematic Report “A Technical Framework”**
Annexes
 - Annex 1 to 5: CCTP BMM / System View as built / Requirements Implementation Guidelines
 - Integration Tests Plan and Test Procedures / WSDL v1.2.1 - documented / Lessons Learned towards a techno solution for CISE / CISE Implementation Plan and Cost Evaluation**Appendix**
 - BMM Space Systems and Services Final Report

- **Thematic Report**
“Information Exchange Network Experimentation”
Annexes
 - Annex 1: BMM Demonstration Executive Plan / User Data - Scenarios Injections / Scenarios Simulation Events
 - Annex 2: BMM Scenarios
 - Annex 3: SBCMP Operational Assessment
 - Annex 4: FRA 1 and 2
 - Annex 5: Experimentation Recordings / Use Cases
 - Annex 6: BMM VIP Demo, Scenario and Execution

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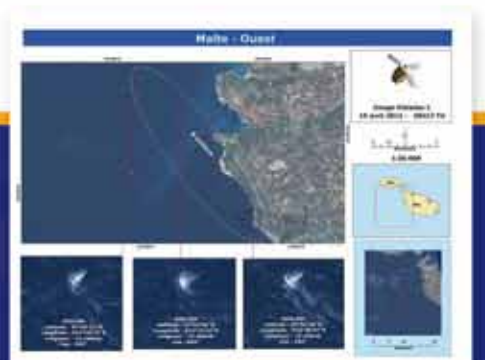
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Glossary

AIS	Automatic Identification System
BMM	BlueMassMed : Pilot project dedicated to maritime surveillance cooperation between actors in the Mediterranean Sea and its Atlantic approaches
CCTP	Cahier des Clauses techniques et particulières
CWG	Communication Working Group
DG Mare	European Commission Directorate General Maritime Affairs and Fisheries
EC	European Commission
EMSN	European Maritime Surveillance Network
IMO	International Maritime Organisation
GIS	Geographic Information System
IMP	Integrated Maritime Policy
LRIT	Long Range Information and Tracking
LWG	Legal Working Group
MARSUNO	Maritime Surveillance North : Pilot project dedicated to maritime surveillance cooperation between actors in the Northern European Maritime Spaces
NAF	NATO Architecture Framework
NATO	North Atlantic Treaty Organisation
NEP	National Exchange Platform
SBCMP	Shared Basic Common Maritime Picture
SOA	Service-Oriented Architecture
TAG	Technical Advisory Group from CISE
TWG	Technical Working Group
UNCLOS	United Nations Convention for the Law Of the Seas
UWG	Users Working Group
PN	Primary Node
VPN	Virtual Private Network
SN	Secondary Node
VMS	Vessel Monitoring System
WSS SOA	Web Service Security
XMSN	eXperimental Maritime Surveillance Network

The BlueMassMed pilot project is one first step toward achieving a better cooperation between the numerous actors of maritime surveillance (Member States' administrations and European agencies principally) and obtaining a better efficiency of resources through the sharing of maritime information, in a cross-sectoral and cross border understanding and implementation. BMM supports the process of creating a Common Information Sharing Environment (CISE) which will serve as decentralised information exchange network interlinking existing and future maritime surveillance and tracking systems throughout EU and connecting to third parties as well. BMM has been developed with the intention to demonstrate the willingness and the capability of 37 partners involved in maritime surveillance in one way or the other, from six different EU Member States littoral to the Mediterranean Sea and its Atlantic approaches, while identifying potential obstacles and the appropriated solutions.



EXECUTIVE

Lessons learnt

Thanks to confidence building BMM opened the challenging way towards maritime surveillance information exchange cross border/cross sector between participating partners.

A resulting reflexion on national organisations occurred among national MS partners.

BMM project developed a solution to allow the exchange of added-value information about maritime domain, not only ship positions and reports, respecting the European treaties and the principles of subsidiary and proportionality.

BMM introduced and paid attention to the closing-up between civilian and military agencies in a permanent way: the cooperation among them has been improved greatly.

BMM maritime information sharing greatly helped partners at the operational level in the transition towards a “responsibility-to-share” information sharing policy, however far from being achieved.

The identification at a very early stage of the users' requirements was vital for the development of the project, as well as an early narrow cooperation and coordination of work between operational and technical actors has been an obvious advantage.

Effectiveness of implementation was achieved through the engagement of Member State's administrations in specifying requirements and implementing common standardized solutions (for the first time the design authority was kept within the MS).

SUMMARY

A major result of BMM is that a basic harmonised front-end has been developed and tested, able to adapt to any given legacy system (or group of legacy systems) thanks to the adopted Service Oriented Architecture (SOA) open approach. This basically decentralised approach should be able to match with the information technology improvements to come.

Another one is that independent but strongly coordinated national processes of procurement can effectively be chosen, with the priceless advantage brought by the principle of subsidiarity. Despite the complexity of the matter, and provided guidelines (operational requirements and technical specifications) are comprehensive and rigorous, the methodology is success able.

A thorough experimental demonstration (indeed an exploration of possibilities and conditions offered or required) deserves a long duration, as operators must appropriate it in the course of their real day to day work.

Space component has been inserted for the first time in a “structured way” in the experimental network and be given an important role in a dual use.

Space assets have been considered as “contributors”, together with not-space in situ assets, to Maritime Surveillance.

Observation satellites could also be utilized in a “proactive mode” (systematic and preventive, not only in emergency situations).

Recommendations

BMM Internal

It is recommended that the BMM Partners set a joint agreement for the continued operation and validation of the prototype experimental network, thus enhancing the value of BMM approach in the future pre-operational validation on a European scale. The will exists. The arrangement must be found.

Data policy, access rights, confidential/sensitive information management, as well as comprehensiveness, detail and rigour of requirements and specifications need to be completed in the future planning of continued cooperation between partners, in relation with future developments of CISE.

The outcomes of these works should equally find their place in the continuation of the experimentation to be conducted within the abovementioned agreement.

EU Wide

BMM, offering starting elements to the work of TAG, permanently developed its work in parallel of CISE conception. So BMM can be used as an embryo for CISE and a seed for the future.

BMM implemented approach, based on an open, decentralised and non-hierarchical architectural design, appears as an optimal solution in the perspective of reinforcing and expanding the maritime information exchange:

- Harmonised cross-sectoral coordination framework on hand of open platforms to share data, information and services;
- Shared information directly controlled by the Member States through a national BMM information platform,
- Waste of resources and duplication avoided.

BMM produced documents (operational vision, users' requirements, data exchange matrix, high level system requirements, technical specifications – System Views) could be used as a reference for future development.

BMM achievements in matters of data exchange policy, data distribution plan and access rights are limited. These areas must be further developed, including space contribution. BMM network is ready for the implementation of multilevel data exchange policy.

A narrow cooperation and coordination of work between operational and technical actors at an early stage is mandatory to ensure coherence and efficiency of the development.

The major outstanding issues, deserving further dedicated efforts before a full scale engineering solution can be achieved, have been identified and described:

- the adoption of architectural solution for dual use systems' interconnection on CISE (enabling exploitation of classified and security sensitive information);
- the detailed design of the information protection mechanism, user/service authentication, data access and distribution policy, controlled by the Competent Authorities;
- the definition of the operational governance at program, network and configuration management level;
- the cooperative development of technological solutions and standards in order to ensure a full life cycle management of the future C.I.S.E. infrastructure.

It is recommended to thoroughly consider the space component for maritime surveillance at EU level. In particular the GMES and GALILEO programs' dedication to maritime surveillance should be enhanced.

From the technical perspective, major BMM recommendations are:

- to keep the design authority at government/institutional level along the next steps towards CISE;
- to further develop the BMM technical and operational

specifications for the operational implementation of CISE (final design, integration and adoption of CISE components);

- to develop and validate a full scale engineering prototype, implementing all the components, services and capabilities defined in the technical specifications (system view) up to a pre-operational level to proof the operational added value through a wide cross sectoral and cross border scenario.

Further harmonisation of maritime picture information fusion techniques and standardisation of the related operational procedures should be pursued at national (inter-ministerial) level and then at EU level in order to consolidate the Shared Basic Common Maritime Picture (SBCMP) concept as the key feature enabling cross-sectoral and cross-border effective interoperability.

Corresponding governance schemes at national and EU level should be established in compliance with the applicable operational and legal constraints.

Further development of more finalized services for security requirements (authentication, confidentiality, integrity, availability, traceability) are required, as well as the enrichment of common services (alerts, vessel of interest, event common following, etc.).

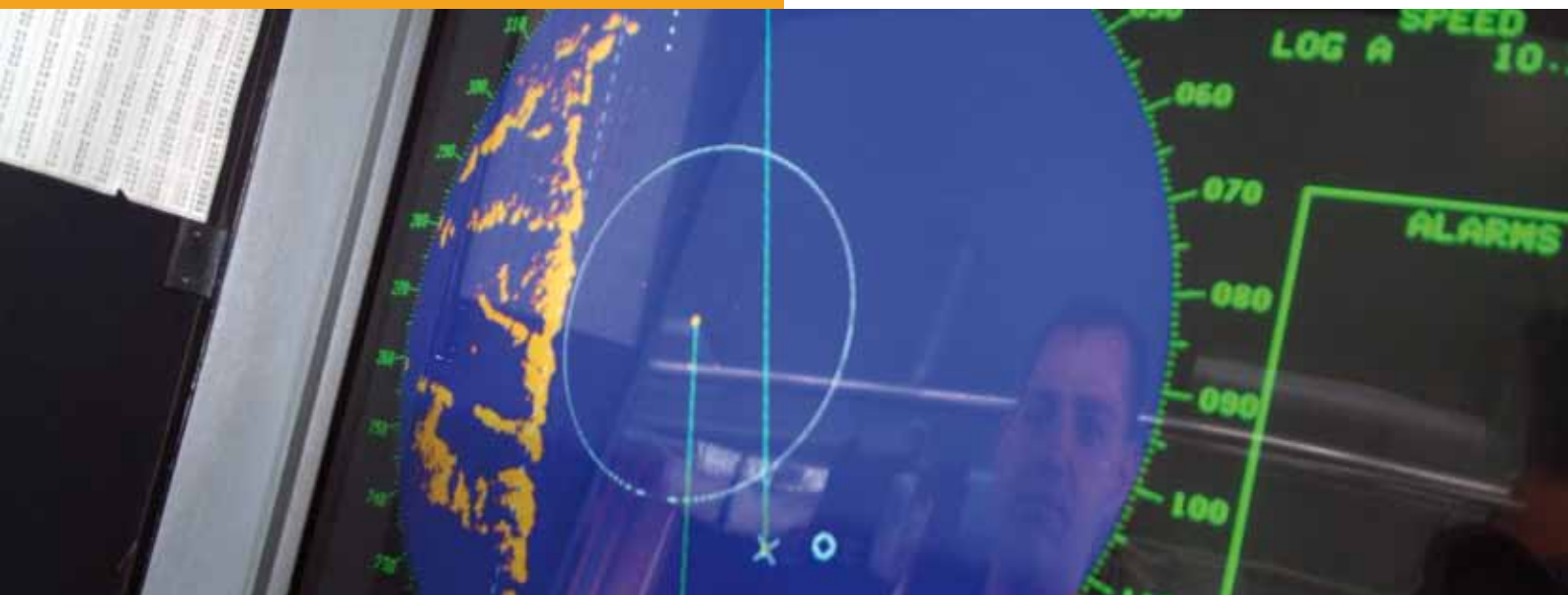
It is highly recommended that the European agencies working on the maritime domain are associated at their right place to the further development of maritime surveillance at European level, in particular as service providers.



On the spatial domain, it is recommended :

- European institutional space assets to be fully recognized as "contributors" to maritime surveillance and reference to them be made in the framework legislation establishing CISE.
- BMM and MARSUNO communities to be considered for consolidation of GMES Maritime Surveillance Security Services.
- to realize a common coherent spatial platform for Maritime Surveillance at European level with the purpose of integration and increase of value of the European infrastructures (GMES and Galileo) and national institutional assets of Observation,
- European end users, with the support of the space community, to define an institutional approach to set up an European strategic AIS asset that allows a complete and worldwide cartography of ships.

INTRODUCTION



This main report sets out the synthesis of the BMM Pilot Project. So, for more detail on a specific issue, the reader can refer to the thematic reports listed above.

IMP was born 2007 with the Blue Book. From the right origin, Governance, Knowledge and Surveillance were recognized as three pillars giving the fundamentals for a useful, coherent and efficient integrated policy which aim is a fair and beneficial use of seas and oceans for the benefit of the European citizens. A direct demand and prerequisite in that perspective is safety, security as well as sustainability for the seas and oceans, a treasure for mankind.

The sea is a space of liberty and freedom. It is a vast and rich space where the humanity will find and build a part of its future. Given the geo-strategical importance and specificity of the seas and the state of the international law of the seas, States are prominent actors.

By nature, by history, by their legal status, seas and oceans belong to the geostrategic sphere of States, and their sovereignty is there directly addressed.

The seas also are an area where illegal or criminal activities are expanding. This reinforces the duties the States have with regard to the seas.

More over maritime surveillance enhanced cooperation is an integrating factor for the European Union, as the States are prior concerned and responsible entities, after the legal status of seas and oceans (UNCLOS). Thus the main way toward a proper cooperation must involve primarily the Member States and especially their actors in charge.

In parallel, as many initiatives are already underway for years, it is paramount to keep an objective of coherence building in order to proceed safely and efficiently and to obtain clarity and complementarity instead of competition and duplication.

A difficulty for intensifying cooperation in integrated maritime policy in general and maritime surveillance in particular rests in the various natures and levels of Member States organization for maritime affairs.

Within each Member State of the European Union, a number of governmental agencies, each for its part of responsibility, collect and analyze information. Single-agency, single-state or combined interventions need sharing of information and intelligence between, and not only, the European Member States or their agencies. While exchange mechanisms of sectoral nature or in limited ways already exist, a wide and commonly used mechanism has not yet been established to allow improvements on data exchange quality and efficiency terms.

For the last decade, Administrations in Europe have developed their own capacities (maritime surveillance systems, data basis, statistics tools, threat analysis tools, etc.), and European agencies are developing sectoral capacities based on centralisation of information owned by the administrations belonging to the main sectoral communities. Thanks to all these new capacities a huge amount of information is now existing but not available and under-used.

BMM OBJECTIVES AND METHODS



The BlueMassMed pilot project is a step (built by a great number of Mediterranean basin and its Atlantic approaches States' maritime surveillance actors) toward achieving the aims to obtain a better efficiency of resources through the sharing of maritime information and a better cooperation between the numerous actors of maritime surveillance (Member States' administrations and European agencies principally) in a cross-sectoral and cross border understanding and implementation.

The objective of BMM is to determine orientations and solutions (organisation, technical and legal solutions), for defining and realizing the best environment for this information sharing.

BMM's central perspective is to feed the applied works to reach at best an efficient European model for cooperation in information sharing use and beyond (maritime surveillance operations efficiency and economy), strongly contributing to start and development of works toward CISE.

One major outcome can be secured as a principal baseline for the future: the complexity of this domain is such, that the solutions cannot be else than decentralised in a common environment, which bigger advantage is to place the States and their actors in front of their responsibility, as they have, from the sovereignty point of view as well as

from that of their internal organization, the means and the ability to decide. So subsidiarity applies especially in the maritime domain.

The guideline of the project has been to mobilize partners around a concrete and practical experimentation of info-sharing in order:

- to test the capacity of project partners to exchange surveillance information relating to Maritime safety-search and rescue-prevention of pollution caused by ships-maritime Security, Fisheries control, Marine pollution preparedness and response-marine environment, Customs, Border control, General law enforcement and Defence;
- to determine the extent to which the project partners are potentially able to set up an exchange of information mechanism at a cross sectoral and cross border level that is viable and durable in time;
- to identify the legal, administrative, technical obstacles that may hinder the exchange of the above mentioned information on a long-term basis;
- to identify on the basis of the acquired experience in exchanging the information, best practices and/or legal adjustments needed to overcome the obstacles identified;

- to determine the extent to which this cooperation between the project partners has resulted in added value – both in qualitative and quantitative terms;
- in particular, to determine the extent to which this cooperation enhances exchanges of information that already takes place between inter alia the Member States, EU Agencies and international organizations.

4A Communication strategy, tools and actions

The aim was mainly to strengthen the internal communication between all the partners as well as externally with the maritime surveillance community and other third parties interested in the project, and the public.

Several tools were designed, built and used:

- A website launched the 13th of January 2010 (www.bluemassmed.net), regularly updated with news, articles and pictures related to the project's activities;
- 2 video clips for the promotion of the project were available to all partners for their own need and communication. It was in particular shown to the public in Euronaval 2011;
- Leaflets: two types of leaflets were designed for distribution in several conferences and workshops where actors of the project participated;
- An interactive working space (realized by FEI) platform facilitated the data, information and documents exchange between all the partners and proved as a very useful tool;
- Newsletters: four were designed and distributed internally giving the project's partners and participants updating and common knowledge on BMM's improvements;
- Social networks: a Facebook and a Twitter accounts were designed at the beginning of 2012.



- Film and Public Conference : organized in Brussels on 7 June 2012, the European BluemassMed Demonstration Conference allowed a numerous audience to watch a 17 minutes film about BMM developments and promises

4B Partners' willingness to exchange information

The prior focus in the working groups was to provoke, assess and foster the availability of Partners.

As a result:

- Partners are willing to exchange data, additional information and services. A large part of the information is already available;
- Partners want to decide when to share or not to share (time, space, subject, etc.);
- Partners want to exchange “basic data” in order to obtain a “Shared Common Basic Maritime Picture” (SCBMP);
- Partners are willing to exchange services that provide higher efficiency to their maritime surveillance and eventual intervention operations;
- Partners are open to share more information and especially sensitive information with some selected partners, on the basis of control and security rules.

4C Study the legal framework

From the identification of the data to be exchanged and the BMM operational view, from the elaborated technical answer towards a network allowing the exchange, the issues to be explored from a legal perspective are to be analyzed and evaluated.

A common legal point of view between BMM member states has to be looked for and established taking into account the point of view of all participating Member States' agencies, European agencies, industry and environmental stakeholders.

The national and European data protection authorities have been questioned about experimental demonstration which encompasses real and fake data exchanges.

Subsequently, identification of significant obstacles and proposal of recommendations to improve the overall legal framework have to be done; and an appropriate legal framework that addresses the most relevant legal issues concerning the interconnection of data systems has to be put in place.

4D SBCMP concept

A Shared Basic Common Maritime Picture (SBCMP) is a single identical display of relevant maritime information shared by the nodes involved in BMM network. It contains the basic tracks original provided by the national maritime surveillance systems feeding the BMM national information platform (primary node). By a systematic sharing of these basic tracks between the primary nodes, any BMM Partner can access to the SBCMP on any primary node's web portal. So, the access to the SBCMP is the basic common service offered by BMM experimental system on any node.

For actors belonging to various users' communities, building, feeding and exploiting the SBCMP in their operational rooms and for the benefit of the accomplishment of their own missions constitutes a powerful mean aiming at experiment, test and assess the BMM concept for information exchange. SBCMP is the comprehensive background information database which offers global vision and own correlation capacity to every BMM partner.

It also facilitates collaborative planning and assists all echelons to achieve situational awareness.

Therefore, establishing and maintaining a SBCMP for a sufficient period of time is an important asset of the experimental demonstration.

4E Define operational services

From the analysis of the Users' requirements, in compliance with a service oriented architecture approach, the objective is to offer the appropriate services to the BMM community.

These services are going to be separated into two categories:

- Core services, corresponding to essential basic technical mechanisms;
- Common services, corresponding to operational services.

4F Define an appropriate technical architecture

The issue is to carry out a technical study aiming at specifying the appropriate technical requirements for designing and realising the BMM experimental network, taking into account the following aspects:

- the BMM experimental demonstration will be fed by some legacy national maritime surveillance systems giving real tracks;
- it will also be fed by fake data related to the operational scenarios;
- the BMM technical architecture has to ensure the participation of partners who don't have any legacy maritime surveillance system. So, by an appropriate technical mean, they have to get access to the BMM services.

4G Build an experimental system

The issue is to design and realize a single experimental system ensuring the interoperability between the involved BMM national information platforms and enabling the BMM partners to play the experimental demonstration.

4H Prove the relevance by making a demonstration

The experimental demonstration process shall offer an optimal harvest of lessons learnt, with the following objectives:

- place partners in capacity of practicing systematic data exchanges, from basic upwards into sensitivity, and benefit from adding value services;
- exercise of info exchange, gradual in complexity, both cross-sectoral (including internal cooperation) and cross-border (and cross-users communities), with the aim of added value to participants by running realistic and pertinent scenarios;
- test and improve the requirements for the best practices in sharing and exchanging data and services during an in-depth demonstration, based on realistic scenarios which focus on activities carried out by the partners in their mission;
- establish and maintain a SBCMP for a sufficient period of time;
- culminate in the process of identifying and solving obstacles;
- disseminate the lessons learnt, estimate the investment and life cycle costs.

In order to conduct an adequate demonstration, the operational and technical requirements are to be streamlined appropriately, considering the purposes and the available time for this demonstration to occur.

BMM ACHIEVEMENTS AND SUCCESS

Gather a large operational community

BMM was the first opportunity to gather 37 partners from 6 EU Member States acting in various operational sectors.

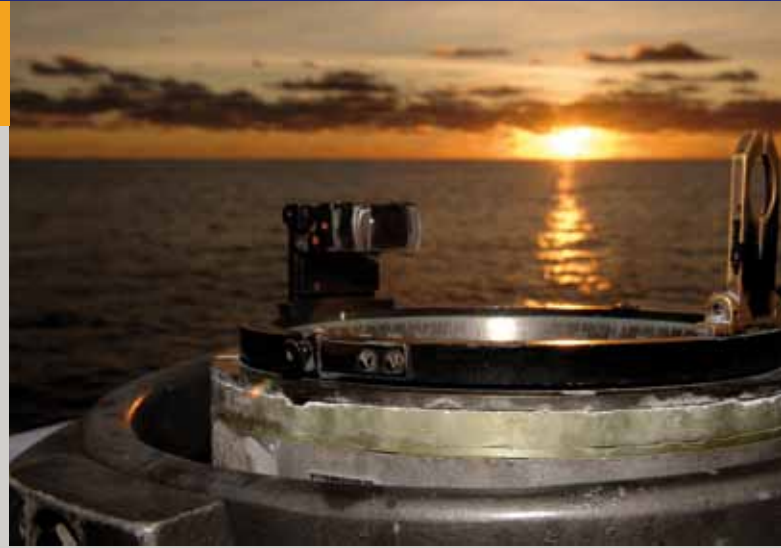
The major sectors related to state action at sea, from civilian and military bodies, were represented. So BMM gave these partners the opportunity to confront their operational culture in order to arouse cooperation's interest.

Promote information exchange and obtain cooperation willingness

BMM initiated the basis of a future cooperation in state action at sea. The information exchange willingness seems to have made progress despite the initial reserves.

Survey the legal present and future legal environment

The BMM Legal Working Group (LWG) was tasked to identify the potential legal barriers to data exchange, maritime and personal, between the different authorities or agencies of the MS and propose legal recommendations to overcome these conflicts.



Define a relevant technical architecture

The network centric, two-level and service oriented architecture proposed by BMM offers the following advantages:

- interoperability between national independent systems;
- easy access to services to any authorised agency, even if it doesn't own any maritime information system;
- flexibility and scalability;
- possible standardisation of many services using open-source.

Even though far from a real standardisation, BMM pilot project succeeded in providing several technical specifications foreshadowing future standards.

Build an experimental system

BMM managed to build an experimental system which allowed partners to realize the feasibility of information exchange, to assess its added-value.

Manage to make a public demonstration

BMM managed to make a public VIP demonstration to a large audience in order to prove the relevance of BMM orientations and recommendations.



BMM operational vision

The operational partners involved in BMM belong to different national authorities responsible for different functions contributing to the state action at sea like **Maritime safety and Security (including Search and Rescue, and prevention of pollution caused by ships), Fisheries control, Marine pollution preparedness and response (and Marine environment), Customs, Border control, General law enforcement, Defence.**

These operational partners are already used to collect and analyse maritime information for their own purposes. In their operational context, some of them may also exchange information with their foreign colleagues dealing with the same operational sector. But a systematic information sharing process is not usual for them, even inside their own sector. And a cross-sector and cross-border information sharing process is far from their operational approach.

So BMM operational vision (see “**Maritime surveillance in the European Union**”, “**BMM thematic report**”, “**A Users operational perspective**”) is based on the promotion of the added-value resulting in sharing maritime information both at cross-sector and cross-border levels, starting with a shared basic common maritime picture

(SBCMP) enabling to collaboratively enhance maritime situational awareness. Exchanging on a case by case basis sensitive information among a restricted community like operational alerts for instance, is also part of BMM operational vision.

During the experimental demonstration, the BMM prototype showed pragmatically to the operational users that enhanced cross border and cross sector cooperation and information sharing is possible (even between civilian and military bodies). So, even though the establishment of operational standard processes and procedures enabling effective information sharing is required and the protection of information shared on the basis of agreed access rights remains to be developed, this operational vision is now shared by the BMM partners, considering that many challenges and risks our nations face at sea are transnational in nature, and in most cases are interconnected.

An important feature of the BMM operational vision is the subsidiarity principle: monitoring and surveillance activities at sea are carried out under the responsibility of Member States and BMM allows full ownership of the process of sharing information.

Legal environment and conclusion

The most relevant legal issues relate to personal data and confidentiality. An unavoidable amount of maritime reporting and surveillance data is qualified, in the national legal framework of MS, as confidential. The importance of addressing these questions properly, giving them the importance that they claim, is clearly the main concern and outcome of this study.

The entire block of legal dispositions which focuses on information exchange and personal data was examined, as well as the statutory provisions contained in the Lisbon treaty, the constitutional texts and principles of the several MS, the relevant European legislations and provisions (directives/regulations/framework decisions) and also the UN Convention on the Law of the Sea (Montego Bay Convention) and several International Agreements.

Soon identified main obstacles were studied and analyzed.

First, the legal mechanisms concerning data protection (criminal and non criminal) differ from State to State and this matter of fact constitutes an obvious barrier to achieve the desired standardization and consolidation of sharing procedures, notwithstanding the existence of Directive 95/46/EC Parliament and Council of 24 October 1995¹.

LWG goal was to identify a common pool of legal constraints, to obtain a common global picture of prohibitions and possibilities, meaning to obtain the specific legal context of data sharing.

Another legal obstacle that the LWG has to do with was the extent and opacity of the core of fundamental had rights, within the national constitutional provisions. A clear and shared view for a consensus regarding the possibility of compression or limitation of important legal and constitutional principles (legality, proportionality and the right to privacy, among others) appears quite difficult. The LWG identified

that the purpose behind the sharing of data – personal data, professional/commercial secrecy, rights of access, data security policy and access to public sector documents – is a fundamental pre-requisite of any data sharing mechanism; therefore, the purposes of exchange must be clearly and precisely described (illegal trafficking, immigration, etc.).

It is also necessary for the MS to identify the entities and agencies with responsibilities of law enforcement in the maritime environment able to carry and promote the inter-state exchange of information.

In summary the LWG concluded that, despite of the existing and identified legal constraints concerning data use (and sharing), it is indeed possible to create an actual practice of exchanging information in a timely manner, so as to enable prevention and suppression of illicit activity. To do so, trust between partner agencies in other MS is mandatory.

More over, personal data (natural or legal person) or commercial data inserted in criminal proceedings which are still in trial procedures, therefore not final, cannot be exchanged between the MS, without permission of the competent judicial authority.

Beyond these cases, the LWG believes there are no legal restrictions on the exchange of personal data between law enforcement authorities of the MS, if made for purposes of criminal prevention, safeguarding the rights of nationals, residents and commercial, under the consent of the responsible data protection authorities.



1. "Directive on the protection of individuals with regard to the processing of personal data and on the free movement of such data".

Technical choices

A network centric architecture

The following points have been considered:

- national maritime surveillance systems are the main sources of maritime information;
- national systems are not interoperable;
- cost-efficiency and not burdening the day-to-day work of users leads to avoid building a new or additional system dealing with maritime information.

Thus BMM has resolutely based its technical work on a network centric architecture allowing an adapted connection to the legacy –or in development– national maritime surveillance systems.

A two-level architecture

The BMM experimental network obeys two-level architecture:

- The Primary Nodes (National Exchange Platforms, NEP): the first level consists of the capacity to provide maritime information and to offer added-value services to BMM community. These Primary Nodes are fed by legacy maritime surveillance systems from participating agencies and are connected to a wide area network (SSL https protocol on Internet), called XMSN;
- The Secondary Nodes (Partner Exchange Platform): the second level consists of the capacity to access to the maritime information and to the services offered by a NEP (PN). Through some of the services, the operational user can also be active by adding data, tracks and information. These Secondary Nodes are simple PC with a web-browser connected to the XMSN and accessing to the portal of one of the Primary Nodes. Any authorised agency (from a Member State or from an European agency) can easily use such secondary node capacity.

The main advantage of this architecture is the separation between legacy maritime surveillance systems and the exchange mechanism. So the legacy maritime surveillance systems can follow their own life-cycle (depending on national considerations) while the exchange mechanism can implement the supplementary evolutions. Beyond implementing services, the Primary Node plays the role of a technical interface: one side linked to the involved national maritime surveillance system, the other side linked to the BMM network (in the future, to the European Maritime Network).

So Primary Nodes become in fact “National Exchange Platforms”.

SOA-based solution

Web Service Security Service Oriented Architecture (WSS SOA) paradigm allows secured connection of disparate systems and networks, developed and managed by government with respect to various sectors, through the adoption of a common semantic and the implementation of a harmonized set of information services.

SOA main added values are:

- flexibility and scalability: modifying, adding, removing a service, independently from the others, is always possible;
- possible standardisation of many services using open-source.



Experimental network

Introduction, initial concept

The idea initially followed by BMM project was based on the design and the realisation of a unique experimental system. These were the main motivations justifying this approach:

- limit the complexity and the technical risks;
- facilitate the technical coordination between the Partners involved in developing a Primary Node;
- all the Primary Nodes offer the same services;
- allow the SBCMP service to be really common (and not only shared).

The BMM requirements were written following the NAF methodology and the decided architecture principles.

Implementation and reorientation

A call for tender for designing, realizing, installing the BMM network and supporting its experimentation, has been carried out. Three consortia submit an offer.

At the end of the examination process, the needed consensus for decision was impossible to find by the BMM Steering Group. The call for tender has been abandoned.

Therefore a new orientation was adopted, keeping the ambition to build an experimental system and to make a demonstration:

- the Partners willing to implement a Primary Node have to develop it on their own;
- each of these Partners have to appoint a Primary Node technical manager who takes the responsibility to achieve the realization of its node in coordination with the other Primary Nodes;
- as there is no single assigned industry to coordinate the development, this coordination is on the shoulder of the Primary Node technical managers. To help them, an external technical coordinator has been contracted by the project;
- a time extension is needed (DG MARE granted the project an eight-month time extension).

Based on the developed baseline design, starting from June 2011, five partners have independently commissioned to

different (groups of) private companies, under a strong coordination process, the implementation of prototype nodes integrated into a BMM demonstration network (XMSN – Experimental Maritime Surveillance Network) that has been tested and validated in the latter part of the BMM project.

So, as a result, a BMM demonstration network has been set-up, composed of 5 Primary Nodes (Italy, Spanish Navy, Spanish Guardia Civil, France, Portugal) connected to over 30 national maritime surveillance systems managed by different authorities, linking over 100 agencies and competent authorities able to access information and to share resources through BMM web services provided to each partner by Primary Nodes accordingly to his credentials and privileges.

The technical coordination was the main difficulty to face because:

- the different Partners involved had not exactly the same planning;
- each Primary Node was driven by one national selected industry. So the design of the BMM experimental system suffered the involvement of five different industries, committed by five different contracts and coming from four different countries;
- the BMM specifications (System View, in NAF methodology), initially written for awarding a single consortium dealing with all the nodes, appeared too open, not precise and detailed enough. So the realization of the five different Primary Nodes became heavier and longer.

A powerful coordination between the Primary Node technical managers and an external technical coordinator permitted to succeed in interoperability between all the BMM nodes.

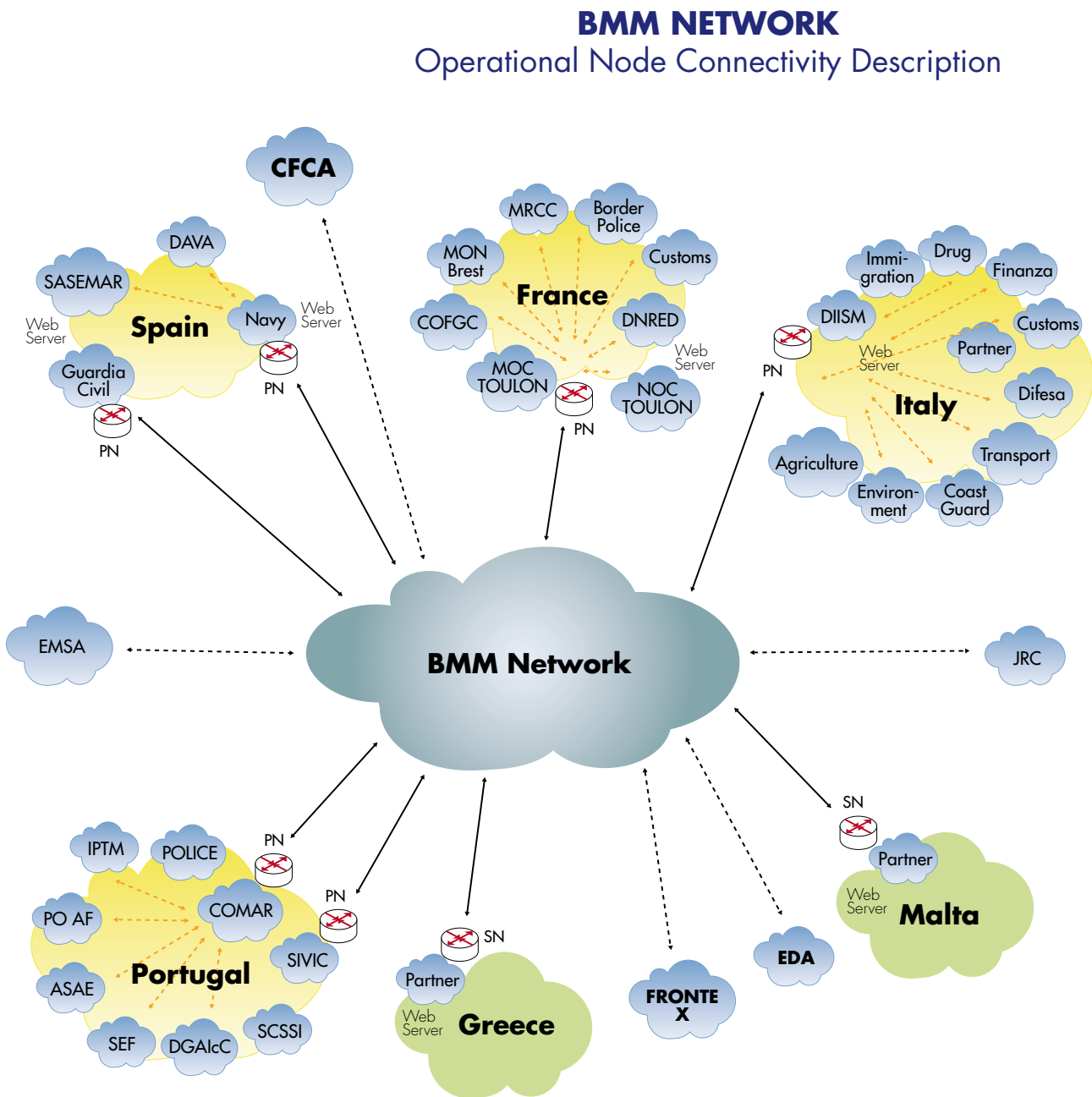
However, this difficulty caused two inconveniences on the experimentation:

- the demonstration had to be carried out on a reduced perimeter
- the confidential information's exchange process has not been studied.

Experimental system description

The categorisation between primary and secondary nodes is explained in the previous chapter.

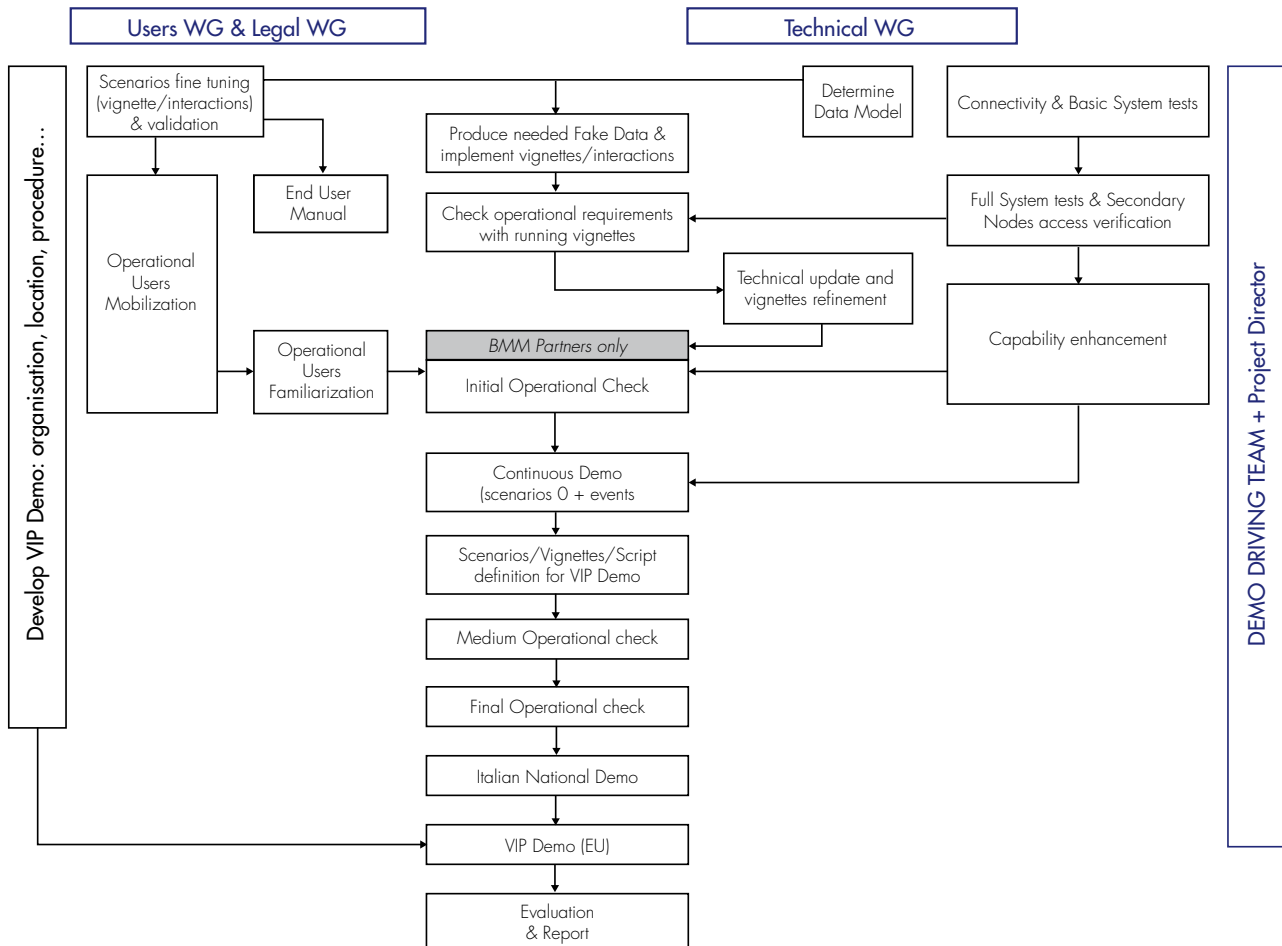
Draw a scheme of the experimental system, mentioning the legacy national maritime information systems connected to the primary nodes.



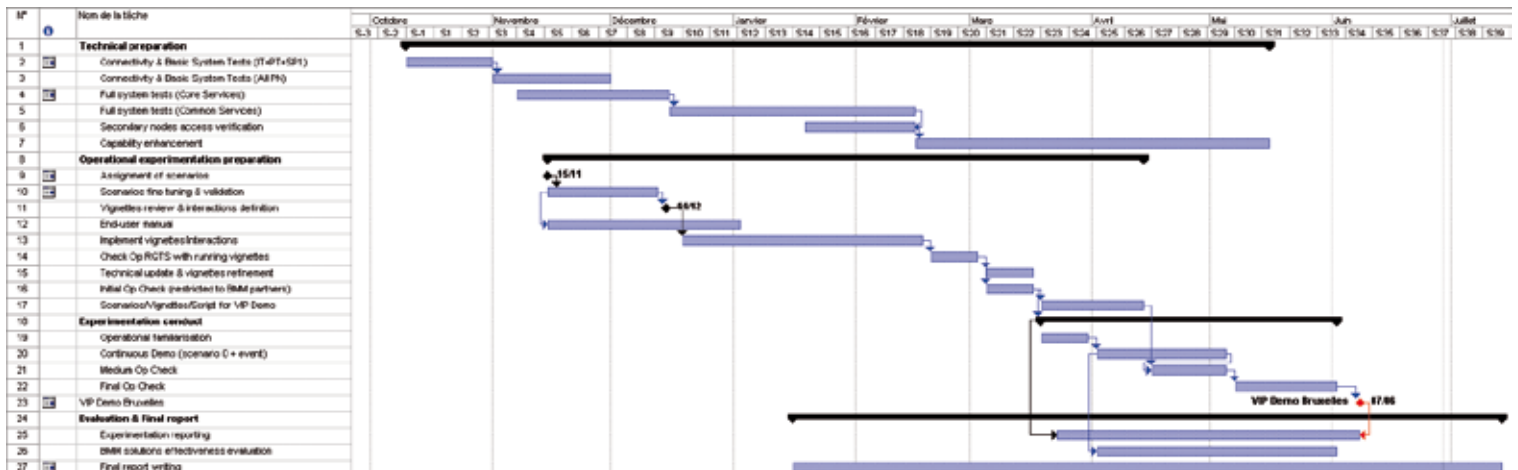
Building the experimental system

Work package and global schedule

The BMM Steering Group approved the work packages summed up in the following diagram.



The corresponding schedule, between October 2011 and June 2012, is shown in the following “demo master plan”.



Built-In tests

Connectivity tests and basic system tests

The connectivity issue included the following tasks:

- Set up the communication network: make sure that every node has an appropriate Internet access, collect the IP address plan and allocate the url, appoint a key management authority (if a VPN is used) and distribute the keys for all the nodes, etc. ;
- Peer-to-peer tests in groups of nodes (Ping each PN from all the other PN and all the SN);
- Sub-Net tests for the dependant secondary nodes (unnecessary for independent secondary nodes: MT, GR and FR secondary nodes).

The basic system tests aimed to verify the following implementation:

- Implementation of Basic System:
 - protocol stack (http / https ; soap);
 - application server middleware (JDK, Glassfish, MySQL);
 - webservice middleware;
 - mapserver middleware;
 - connection tests at SOAP level;
 - connection tests at mapserver level.
- Implementation of BMM Data Model (XML Schemes)
 - population of PN databases with sample data;
 - data exchange tests through XSD.

Full system tests

All kind of nodes were involved in the full system tests. So they began by supplying all the Secondary Nodes with the detailed process to connect to any Primary Node. They aimed to verify the following implementation:

- Web Portal & Web GIS:
 - implementation of Web Portal & Web GIS
 - data exchange tests through Web Portal & Web GIS,
 - testing of Core Collaboration Services available (VTC, Mail, VoIP, etc).
- Identity & Access management
 - implementation of PN Identity & Access management;
 - implementation of shared LDAP directory;
 - Login Access Tests from local user;
 - Login Access Tests from remote user (through web portal).
- Service Registry
 - implementation of Service Registry UDDI;
 - Service Access Tests from local user;
 - Service Access Tests from remote user (through web portal).

The full system tests also included, in two successive steps, the verification of the activation of the Core Services and the Common Services.

The Core Services include:

- Web Portal and WebGIS (Community services);
- Identity & Access Management (Information Assurance Services)
- Service Registry Management (Service Management & Control services)

Activating the following functions:

- USM – User Management;
- USA – User Authentication;
- SEM – Service Management;
- SEA – Service Authorisation;
- POM – Portal Management;
- MPM – Map Management.

The Common Services include:

- Track data / information exchange;
- Regional correlation;
- Wide Area Rapid Mapping;
- Data Augmentation Service;

Activating the following functions:

- TSG - Time Stamping & Geo Reference;
- TRM - Track Management;
- TEX - Track Exchange;
- TRS - Track Synchronisation;
- TAC - Track Association & Correlation;
- RMM – Rapid Mapping Management.

Secondary Nodes access verification

This task was performed before the end of the Full system tests, as SN belong to global BMM experimentation mechanism.

Capabilities enhancement phase

This capability enhancement phase was dedicated to solving problems detected mainly during the preparation phase, but also at implementing additional services (such as data protection and security management, inter alia...).

This phase has last until the end of the experimentation.



Experimentation

and demonstration

Content

Two major steps have to be considered:

- the continuous experimentation phase;
- the VIP demonstration, held in Brussels on 7 June 2012.

The first step offers the opportunity:

- to elaborate and maintain the SBCMP during several significant periods of time;
- to technically adjust the services;
- to play operational scenarios.

The second step was the event giving the opportunity to show the use of the BMM network to a large audience and to demonstrate its efficiency.

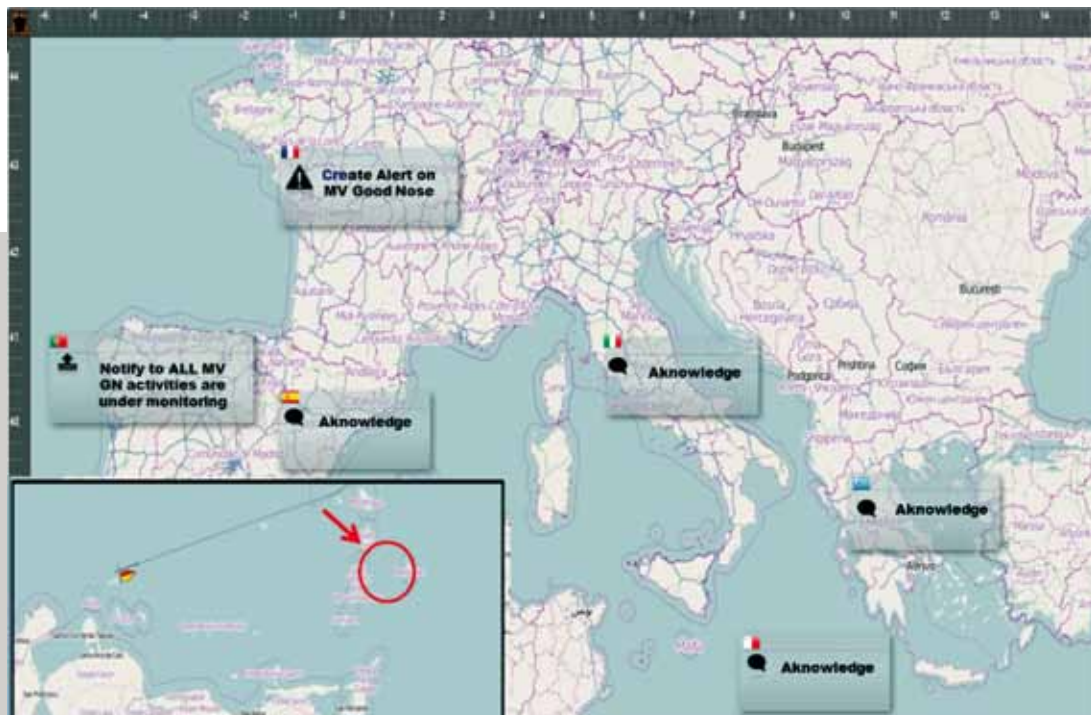
The following paragraphs detail the content of these two steps.

Operational scenarios

Initially six scenarios have been imagined to provide situations to test all the users' requirements and services. Additionally, they were designed to provide the opportunity to all partners to take a place in the demonstration and to ensure that all sectors were represented. More over they were also shaped as to allow the potential obstacles to be "sailed around" and evaluated from an operational practice.

In a second step, three of them were developed, taking into account the principle to involve all sectors (the seven of CISE) represented in BMM. These three scenarios have been played during the continuous experimentation's phase.

As the time was pressing and for practical reasons, only one scenario, mixing the three previous ones, was fully developed to support the VIP Demonstration.



Refer to "A Users operational perspective report" for more details on the scenarios.



Operational preparation

The experimentation was based on realistic scenarios, one “day to day life” (Scenario zero, utilised during the continuous experimentation period) and 5 simulated events to provide opportunities enough to test all the services.

Those main events at sea were run on top of the actual Shared Basic Common Maritime Picture.

Those main events were developed either simultaneously or consequently (depending on the cases) to conform the overall scenario.

Each of the main events (vignettes) had an associated “list of injections” including the details of all the data and services to be exchanged (date and time, data or service requested) as well as consumer/requesting partner, producer/providing partner.

Each primary node had the complete “list of injections”.

The list of data and services to be exchanged has been elaborated taking into account the limitations imposed to the different PN according to the paragraph 2.2 of the “Technical Specifications for the BMM nodes participating in the BMM demonstration”.

The scenarios (“main events”, with their associated “Lists of Injections”, coming on top of the SBCMP) complied with the following conditions:

- related to most of the activities envisaged within the responsibility of the different involved partners;
- involving all the Primary Nodes, and the Secondary ones as much as possible;
- providing room enough to test the BMM Common Services implemented in the XMSN (from the specification documents) and the adequacy of

Information Exchange Requirements (from the BMM Operational View 2.0).

Any opportunity to check the system against real world situations was to be seized.

Experimentation conduct

Operational familiarization

The initial training of the technical and operational actors in view of operating the nodes (PN or SN) has been made under national responsibility following the progress of BMM network building.

Continuous experimentation (Scenario 0 and events)

The continuous experimentation phase was conceived as an open period (as long as possible with respect with the global experimentation time period) where successive experimentations slots have been organised and dedicated to specific purposes.

The pre-requisite for this was that the BMM network remains available throughout, and that the BMM partners involved their operational human resources for the purpose of the experimentations required.

Playing the different written scenarios (from scenario zero to the various activities oriented scenarios) has taken place during this period.

Public Event (Brussels 7 June 2012) :

The BlueMassMed European Demonstration Conference was held on June 7th in Brussels at Brussels 44. The main

purpose of the conference was to introduce the inputs and outputs of the BMM project as well as discuss possible opportunities for cooperation in the future.

The conference gathered more than 300 people from public institutions – Member States, European Union – and from the private sector. A 15 mn movie, tailor made for the event, was showcased to the audience in order to demonstrate tangible achievements of the BMM project.

After the opening remarks addressed to the floor by the project director and Commissioner Damanaki's video speech, the first round table entitled "Need of cooperation for enhanced efficiency, gaps that BMM addresses" aimed at discussing the Integrated Maritime Policy at the European level. The three speakers were Mr John Richardson – former Head of IMP TF team, Mr Xavier de la Gorce – former SG Mer and Almirante Fernando del Pozo – Wise Pen.

The second round table "BMM answers: operational and technical concepts, network, services, architecture, experimentation" gathered a broad range of people from the BMM project and from various administrations of the 6 countries involved in the project. An important number of issues related to the implementation of the project were addressed and the audience was able to consider the operational and technical work done through the BMM network.

The conference ended with a panel discussion on the perspectives opened in EU maritime surveillance organization. JM Van Huffel, Alejandro Abellan, Michel Aymeric, Enrico Maria Pujia, Joao Fonseca Ribeiro, Lowri

Evans and Chris Reynolds participated in the discussion. The challenging debate which took place between the participants themselves and between the participants and the audience opened up relevant perspectives for the future of maritime surveillance in Europe.

Several performances of the demonstration scenario have been given to successive groups of participants to the conference in an exhibition room.

20 desktops manned by the 5 Primary Nodes (National Exchange Platform) and other partner administrations connected together allowed the audience to watch the practical realization and functioning of the BlueMassMed experimental Network.

The live demonstration showed how, in a typical scenario of smuggling of illegal immigrants at sea, the cooperation between competent authorities is considerably more profitable and efficient through the real-time availability of a shared maritime situation, ensuring the exchange of services obtained from different and independent technology platforms designed and developed in respect to different European and national policy requirements. The demonstration highlighted the high-level technological capabilities offered by EU Member States and European industries, and the unique ability to design a collaborative, advanced and open architecture, ensuring the requested interoperability to allow a real, effective and decentralized European cooperation at sea.



LESSONS LEARNT

About added-value

Added-value of cross-border and cross-sectoral information exchange is now shared by all the BMM partners.

Even though the BMM pilot project did not quantify it, maritime information exchange is likely to enable a better control of maritime surveillance expenditure by:

- taking benefit from a wider and better knowledge of the maritime situation by a better use of the intervention's means;
- allowing collaborative planning between partners.

About industrial interest's considerations

The difficulties encountered by BMM with its call for tender for the experimental system procurement demonstrate the necessity to avoid a potential heavy impact of industrial competition on the process, likely to compromise the cooperation between foreign partners. Promoting a standardisation's approach allowing any agency or any Member State to conduct its own development, and to deal with its own procurement process, constitutes an appropriate answer.

About subsidiarity principle

It is obvious that the maritime surveillance constitutes a complex field where really numerous "finesses" must be taken into consideration (legal status of the seas and oceans, legal arsenals of States and their actors, number of actors, etc.). So it is paramount to use as much as possible of the subsidiarity principle, the result of which often offers an easier solution to complexity, as it is dealt with within the States.

About legal issues

There are no legal obstacles in the exchange of data within the BMM Member States regime. Every kind of

contribution of basic data (demonstration) but also sensitive data (police – customs, with the Swedish initiative as main instrument) is included;

Need to make a communication to the National Data Protection Authorities; data security policy- individual/fundamental rights;

The BMM was successful in the fusion of basic civil-military data and vice-versa;

Issue of intellectual property rights of public entities are out of question in this project. What could be considered is the question of property on commercial data deriving from the private sector (especially fisheries);

"Need to know" principle requires a paradigm shift on behalf of the users' communities in order to function in balance with principle of "responsibility to share".

About technical issues

- realize the harmonized cross-sectoral maritime situation;
- assure the Member States / Nations to directly control the management of shared information through a national BMM node;
- allow better use of European resources through direct financing of government that can most appropriately exploit the project results in terms of definition and harmonization of requirements and standardization and reuse of solutions;
- ensure the optimization of available information avoiding, at the same time, the waste of resources due to duplication of existing systems in use and the capability to provide cooperating neighbouring countries with an open platform to share data, information and services.

Whatever the need and the constraints, the technical topic is not an obstacle: solutions do exist! Many of them are available in open-source products.

BMM didn't encounter insurmountable technical obstacle to realise its experimental system. Obviously, all the problems have not been studied by BMM and the way to a permanent cross-border and cross-sectoral cooperation is still long. But the main challenges consist in the legal constraints to take into account and the operational procedures to invent. Technical solutions will be found to satisfy these two major issues.

BMM RECOMMENDATIONS



Decentralised and two-level architecture

BMM recommends keeping a network centric and two-level architecture favouring national maritime information systems interoperability and avoiding hidden industrial interest's considerations, likely to compromise the cooperation between foreign partners.

Even though the demonstrative network was built mainly around inter-ministerial Nodes (Italy, France, Portugal and with some limitation Spanish Navy), the concept of Sectorial and Multi-Sectorial Node was also exploited in the BMM architecture. As an example, the Spanish Guardia Civil Node was autonomously connected to the BMM demonstrative network, and the Italian Coast Guard clearly stated during the project their willingness to directly connect in the future to BMM Network its National VTMISS system, in order to improve information services related to the Safety of Navigation, Traffic Control, SAR coordination, Fisheries Monitoring and Environmental Protection sectors.

BMM concept and the devised network architecture are fully compatible and supporting such approach, and will be able to provide in the future a unique and comprehensive interoperable network that can be exploited at the same time for sectorial and cross-sectorial information services exchange among Competent Authorities and European Agencies, according to a data distribution and access policy that will result from the combination of constraints enforced by:

- relevant sectorial coordination bodies, as far as the sectorial dimension of the data exchange is concerned,
- national coordination bodies, as far as the sensitivity and national security dimension of the data exchange is concerned;
- future EU coordination bodies, as far as the general cross-sectorial cross-border data exchange policy is concerned (enforcing a “need-to-share” and “responsibility-to-share” paradigm).

BMM project major outcome can be thought of as a basic harmonised Front-End capable to adapt any given legacy system (or group of legacy systems) to the C.I.S.E. network thanks to the adopted SOA open approach.

Starting from such result, the main recommendation from the technical perspective at the end of the BMM project is to proceed with the project definition phase, based on the achieved technical results, and keeping at government/institutional level the design authority, in order to:

- *develop and validate a full scale engineering prototype*, implementing all the components, services and capabilities defined in the technical specifications (System View) up to a pre-operational level compatible with the need to proof the operational added value in a sufficiently wide cross sectorial and cross border scenario;
- *develop the fully engineered technical and operational specifications* for the operational implementation of C.I.S.E. (final design, procurement, integration and acceptance of the C.I.S.E. components).



However in order to ensure full continuity of the BMM technical approach and of cooperation model established within the BMM project towards an integrated maritime surveillance capability in Europe, the following major recommendations can be drawn:

- in the short term (next 3-6 months), it is recommended that the BMM Partner Nations set a joint agreement for the continued operation and validation of the prototype experimental network established by the Project;
- in the mid-term (6-12 months), it is recommended that the BMM Partners promote further cooperation initiative, open to a larger number of participants, for the adoption of the BMM approach for the pre-operational validation of the C.I.S.E. on an European scale, as foreseen by the current DG Mare roadmap for C.I.S.E. implementation. It is worth noting that in this context the exploitation of the results of the BMM project (the harmonised C.I.S.E. front-end) can be extended to those systems that were not included in the BMM project perimeters, and first of all to

those covered by the twin pilot project for the Baltic MARSUNO.

Finally, it is recommended that:

- further harmonisation of maritime picture information fusion techniques and standardization of the related operational procedures is pursued at national (interministerial) level by each PN and then at EU level in order to consolidate the Shared Basic Common Maritime Picture (SBCMP) concept as the key feature enabling cross-sectorial cross-border decision support capabilities on the C.I.S.E.;
- corresponding governance schemes at national and EU level are proposed, in compliance with the applicable operational and legal constraints.

Standardization approach

BMM recommend promoting a standardisation's approach allowing any agency or any Member State to conduct its own development, and to deal with its own procurement process.

Legal conclusions

European framework would be necessary to go on with BMM communities, and wider, on a potential cross-sector/cross-border aspect.

The possibility of exchanging data with third States (non EU) should be envisaged.

Endeavour the possibility of a mixed public-private agreement to handle the question of property on commercial data deriving from the private sector.

There are no legal obstacles in the exchange of data within the Member States regime. Every kind of contribution of basic data (demonstration) is included, as well as sensitive data (police – customs) empowered by the Swedish initiative (EU Council Framework Decision 2006/960/JHA).

A communication to the National Data Protection Authorities is needed (data security policy- individual/fundamental rights) in order to enable MS to exchange data within the scope of maritime.

The BMM pilot-project was successful in the fusion of basic civil-military data and vice-versa, meaning that it reinforced the already existing military use of civil data, as well as it provided the use of military data for civil purposes.

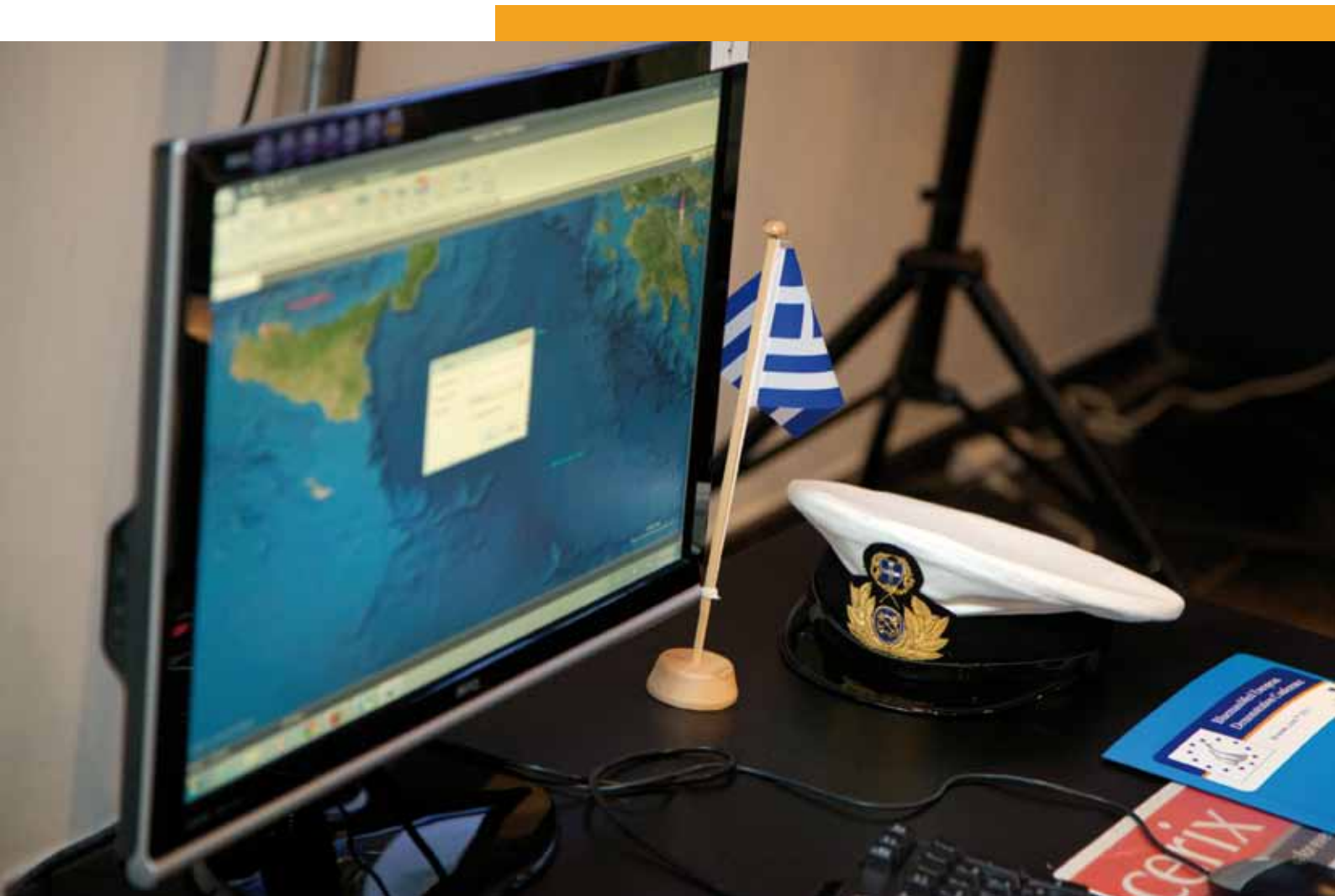
Issues of intellectual property rights of public entities are out of question within the BMM pilot project, as well as in the scope of maritime surveillance. However, issues regarding the property on commercial data deriving from the private sector may have to be considered under a different approach, namely endeavour the possibility of a mixed public-private agreement (e.g. USA precedent).

From “need to know” to “responsibility to share”

“Need to know” principle in balance with “responsibility to share” principle leads to a paradigm shift on behalf of the user’s communities towards an increasing common trust and awareness of the “interest to share” and its added value.

Satellite

It is recommended to improve and extend the capacities to share space information (images, AIS, etc.) of national dual systems to be able to share information between accredited institutional european users during joint security operations. For this goal, it is proposed to define an european common platform (adapted to the needs of the maritime surveillance users) which interface the existing national civil services and to upgrade the rules an agreements in force accordingly.





FURTHER

WORKS

Define a Data Distribution Plan (DDP) in a cross-sectoral landscape

As already said, defining operational procedures is mandatory. A data distribution plan is part of them.

In compliance with the legal framework, this DDP will determine the rules to apply in exchanging information, considering the different categories of data (basic, personal, commercial, sensitive, confidential) and the operational sectors.

Develop Standards for data dissemination (format, exchange protocol), services, technical architecture (nodes)

As they have been shared by all the 37 partners involved in the project, BMM specifications can be considered as a first step towards standardisation. Obviously, the way is still long and this work has to be continued.

Considering BMM recommendations, an initial technical framework has to be defined:

- data model;
- global network architecture,
- exchange protocol;
- authentication process, certificates;
- core and common services definition;
- any other relevant technical features.

Afterwards, this technical framework should follow a configuration management process led by an “EU Maritime Information Configuration Board” with the participation of all EU involved agencies or Member States. Working groups would conduct the change proposals coming from the participating bodies and make decision’s proposal to the Board.

Deepen legal aspects: promote the definition of an European framework dedicated to Maritime information-sharing

A European legislation should be defined to frame a potential cross-sector/cross-border maritime information sharing process.

The possibility of exchanging data with third States (non EU) should be envisaged.

There’s a need to endeavour the possibility of a mixed public-private agreement to handle the question of property on commercial data deriving from the private sector.

Consolidate SBCMP concept at national level

BMM noticed that in many EU Member States the cross-sector maritime information exchange was just emerging. To ensure coherence with the cross-border SBCMP we want to promote, a consolidation at national level of this concept seems to be carried out.

Study confidential data exchange process

Confidential data exchange process has not been studied by BMM. It supposes to control the dissemination and to respect the national information’s security processes.

Studying technical solutions and assessing their homologation by all the involved Member States’ competent authorities is mandatory.

Services enhancement

Because of their experimental status and considering the limited time allowed, improvement of BMM core and common services are expected, especially:

- on security requirements (authentication, confidentiality, integrity, availability, traceability);
- on enrichment of common services (alerts service, vessel of interest service, event common following service, etc.).



Partners to the project:



ELLAS

- Ministry of Citizen's Protection, Hellenic Coast Guard

ESPAÑA

- Ministerio de Asuntos Exteriores y de Cooperación, Secretaría de Estado para la UE, Dirección General de Coordinación de Políticas Comunes y Asuntos Generales UE
- Ministerio de Economía y Hacienda y Administraciones Públicas. A.E.A.T., Departamento de Aduanas e I.I.EE, Dirección Adjunta de Vigilancia Aduanera
- Ministerio de Defensa, Armada Española, Estado Mayor de la Armada
- Ministerio del Interior, Dirección General de la Guardia Civil
- Ministerio de Agricultura, Alimentación y Medio Ambiente, Secretaria General de Pesca, Dirección General de Recursos Pesqueros y Acuicultura
- Ministerio de Fomento, Dirección General de la Marina Mercante

FRANCE

- Secrétariat Général de la Mer
- Ministère de la Défense, état-major de la Marine
- Ministère de la Défense, direction générale de l'armement
- Ministère du Budget, des comptes publics et de la fonction publique, Direction générale des douanes et droits indirects
- Ministère de l'Écologie, de l'énergie, du développement durable et de la mer, direction des affaires maritimes
- Ministère de l'Immigration, de l'intégration, de l'identité nationale et du développement solidaire
- Ministère de l'Intérieur, de l'outre-mer et des collectivités territoriales.
- Centre national d'études spatiales

ITALY

- Agenza Spaziale Italiana
- Ministero della Difesa, Stato Maggiore Difesa
- Ministero della Difesa, Stato Maggiore Marina
- Ministero dell'Interno, Direzione Antidroga
- Ministero dell'Interno, Direzione Immigrazione
- Ministero Infrastrutture e Trasporti, Comando Generale delle Capitanerie di Porto-Guardia Costiera
- Ministero Infrastrutture e Trasporti, Direzione Generale Trasporto Marittimo
- Ministero dell'Economia e delle Finanze, Comando Generale della Guardia di Finanza
- Ministero dell'Economia e delle Finanze, Agenzia delle Dogane, Ufficio Antifrode centrale
- Ministero dell'Ambiente e della Tutela del Territorio e del Mare Direzione Generale Protezione della Natura
- Ministero Politiche Agricole Alimentari e Forestali, Direzione Pesca Marittima e Acquacoltura

MALTA

- € Office of the Prime Minister of Malta

PORTUGAL

- Direção-Geral de Política do Mar
- Marinha Portuguesa
- Força Aérea Portuguesa
- Guarda Nacional Republicana
- Serviço de Estrangeiros e Fronteiras
- Instituto Português e dos Transportes Marítimos
- Sistema de Segurança Interna
- Polícia Judiciária
- Direção-Geral da Autoridade Marítima
- Polícia Marítima
- Autoridade de Segurança Alimentar e Económica
- Autoridade Tributária e Aduaneira



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