Priority Project 21 Motorways of the Sea

Annual Report of the Coordinator
Luis Valente de Oliveira
This report only represents the opinion of the European Coordinator and does not prejudice the official position of the European Commission.
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SUMMARY

The development of Motorways of the Sea (MoS) will provide a framework for the deployment of high level standards for efficient, safe and environmentally friendly maritime transport operations which can be fully integrated in a door-to-door transport chain.

MoS, whilst ultimately aiming at the increase of cargo flows to be carried by maritime traffic, aim primarily at the development of efficient ports and better port hinterland infrastructure and connectivity which will facilitate a smooth traffic flow. This development will help to mitigate traffic congestion and land transport deficient links between regions which are detrimental to cohesion and a dynamic internal market.

MoS will be integral to any efficient logistics chain aimed at supporting trade whilst reducing the transport footprint on the environment. Currently, 31 deployment projects and pilots support this contribution to sustainable development.

Finally, MoS will become an intrinsic part of the future TEN-T Core Network and as such, fulfil its key role as the main exchange platform for the European foreign trade and increased European competitiveness.

Methodology

The opinions expressed are those of the European Coordinator, based on his findings in the sixth year of his mandate. The Coordinator formulates a number of recommendations that draw upon his contacts and meetings, including those with the Member States and the European representative organisations (both institutional and industrial), on issues that are common throughout Europe. This report relies upon the previous reports as well as on the progress and results of the ongoing MoS projects.

The recommendations at the end of the report highlight both recurrent issues and others which need further attention.

1 Complementarity - for the complete 2007-2012 annual reports on this project, see: http://ec.europa.eu/transport/themes/infrastructure/ten-t-implementation/priority-projects/annual-reports_en.htm
1. **FOREWORD**

TEN-T Priority Project 21 Motorways of the Sea (MoS) builds on the EU’s "2020" goal of achieving a clean, safe and efficient transport system by transforming shipping into a genuine alternative to overcrowded land transport. The MoS concept aims at introducing new inter-modal maritime logistics chains to bring about a structural change to transport organisation: door-to-door integrated transport chains.

Given the holistic approach required from MoS which addresses both of these impacts, international and internal trade across the entire EU and particularly on the EU maritime waterfront, a European Coordinator was appointed in the summer of 2007 to promote the efforts required for its development.

This progress report builds largely on annual findings from 2007 onwards and sets out the Coordinator's new findings in 2013. It also:

- Describes and assesses the progress and results of the 31 ongoing MoS TEN-T projects;
- Addresses the progress made thus far by several MoS initiatives such as the "clustering meetings" and others carried out under different frameworks;
- Provides more clarity in the MoS concept and describes the foundation of the new MoS TEN-T guidelines;
- Identifies the Priorities for the Motorways of the sea Calls under the Multi-annual Programme of the TEN-T 2007-2013 and
- Defines a set of recommendations on priority actions to take in the fields of research, innovation and deployment of infrastructure and services and the priorities for the new workprogrammes and Calls to be launched under the new Financial Framework – the Connecting Europe Facility (2014-2020).

In 2013, the perspectives for MoS have changed enormously. Not only has the sector accepted the concept, approach and the priorities set out in the Coordinator's previous reports but has massively responded and 13 new TEN-T projects, representing more than 169 M€, are now about to start. The results of the Call 2012-2013 were extremely successful. Not only 22 eligible proposals worth 212 M€ of requested grants were received (almost threefold of the indicative budget) but finally 13 proposals requesting 169.7 M€ were retained for funding (more than the double of the indicative funding). This success confirms that the sector has fully accepted the new concept and is using it to improve efficiency and meet new challenges.

From the qualitative viewpoint, it should also be highlighted that most of the proposals addressed "wider benefit" issues, e.g. safety, ICT logistics platforms, port single windows and new organisational schemes for ports as well as corridor integration. Last but not least, they also look at the use of LNG and other technologies to reduce emissions, using pilot projects to develop and demonstrate operational solutions making of MoS TEN-T the largest single tool to spur change and support industrial efforts within the SECA areas.

In 2013, the Coordinator has continued to promote coordination meetings to bring together the MoS consortia and other stakeholders in order to improve cooperation and exploit synergies, avoid duplicative efforts and make the best possible use of resources. In addition to the MoS slots on the TEN-T days that took place in Tallinn, several meetings were organised by the projects attracting more than 500 participants overall. Those clustering meetings were fundamental to share experiences, raise awareness, disseminate results and foster the development of new proposals. They were also used as sounding boards to identify new priorities and missing links. In addition to the clustering meetings, the ongoing projects have organised progress meetings, peer reviews and final reporting (e.g. Mos4MoS and TRAINMOS in the European Parliament) much contributing to the transparency of the programme as well as to the increased awareness and support of the European policy decision makers.

The report also identifies key MoS issues that require further development. Those issues of technological, organisational and procedural nature reflect the new transport policy as outlined in DG MOVE's 2011 White Paper.
Finally, it addresses the new definition of MoS stemming from the new TEN-T guidelines. In short, it promotes MoS as the maritime face (shipping and ports) of the new TEN-T Core Network and consequently as the tool to integrate the key elements of the EU’s maritime policy and Europe’s vital export and import gates in the European transport infrastructure. Under the Connecting Europe Facility (2014-2020), it identifies the integration of the maritime network [i.e. ports, maritime operations] and TEN-T corridors as the first step of deployment for the TEN-T Core Network.

2. INTRODUCTION - MOTORWAYS OF THE SEA

The European transport system faces a difficult challenge: to support the continued development of the largest trading block in the world, simultaneously catering for overseas trade and the needs of the internal market. In Europe, the challenge is the interconnection of the internal market and mobility to accommodate large trade flows from Asia and the Americas – being transported through the Suez and Panama Canals or South Atlantic. In 2011, the value of EU seaborne external trade was growing up to €1693.7 billion (from €1452.3 in 2010). Maritime transport and ports handle up to 90% (in ton km) of EU external trade and 40% (in tonnes) of intra-EU freight exchanges. In 2010, European maritime transport and ports handled slightly under 400 million passengers. European ports are directly linked to over 800,000 enterprises, generating in total the direct and indirect employment of about 3 million people.

In times, such as the current conditions, when economic growth is essential, the role of maritime transport and ports is particularly important and thus needs to be adequately reflected in the European transport system/ TEN-T network.

TEN-T requires a dual approach, meaning that it should be developed simultaneously both as a tool to externally connect Europe to the world as well as to link its own countries and regions. For this, maritime operations and ports require efficient tools to be effectively interconnected and utilised. This is the heart of MoS development as it pursues the development of these tools. By improving maritime and ports operations, MoS develops the underlying foundation of Europe’s foreign trade. As a funding (policy and financing) framework, MoS will improve port infrastructure, develop interoperable port-ship interfaces and efficient port-hinterland connections, link ports and integrate origins and destinations and bridge gaps in and between different trade and transport corridors.

MoS provides a shrewd platform, using sophisticated information systems to integrate important assets, such as ports, shipping and know-how, tackle transport efficiency problems and endeavour to properly integrate maritime transport in the global logistics chain. For example, port single windows – single points of contact between ships, cargoes, authorities and logistics operators - will pave the way for a smooth transit of cargo through the necessary customs and phytosanitary controls, saving literally hundreds of millions of euros by eradicating obsolete and cumbersome procedures. There are already practical results in this area, such as in the Mos4Mos project: others are being deployed and will be ready by the end of 2013, such as MIELE which involves ten ports/ authorities and seven different Member States. Finally large platforms tackling simplification and increased efficiency of administrative procedures such as the ANNA project (gathering 14 Member States and reaching the remainder) are building the administrative infrastructure required to promote efficient multimodal transport.
In parallel, MoS supports the development of highly efficient shipping operations guaranteeing the smooth flow of large quantities of goods and efficient intermodal connection with the hinterland of ports such as Karlskrona-Gdynia, Trelleborg-Rostock, Gijon-Nantes, London-Bilbao or Zeebrugge-Ejsberg.

MoS fosters and favours cooperation and regional use of resources, such as between Gothenburg-Aarhus and Tallinn, by supporting the development of a common information structure, the development of better links between the ports and high density freight lines with the hinterland. A North Adriatic platform (to be completed by the end of 2013) will join together key ports in the area under a common corporate image, and the “Adriamos” project linking the upper Adriatic and the Hellenic peninsula (results expected in early 2015) supports three different transport Corridors and connects to/from the Baltic rim.

MoS supports safety and protection of the environment, including the development of sustainable maritime operations and the respect of environmental targets. This is particularly important on the Sulphur Emmission Control Areas where MoS activities involve countries, ports and ship operators in the Baltic and North Seas addressing the implementation of remedial tools such as the use of Liquified Natural Gas (LNG), Methanol or scrubbers, as such MoS is supporting the retrofitting of ships and re-fuelling barges as well as the deployment of re-fuelling facilities in ports (e.g. Rotterdam-Gothenburg project). A deployment masterplan for ports is currently being developed by the Baltic Seaports Organisation and should deliver results in 2014. MoS also supports projects producing new and updated hydrographical surveys, which help ships sail safely and avoid grounding, and more dynamic Sea traffic Management to improve efficiency, prevent collisions and other accidents. The results of full scale pilots in this area are expected in early 2015. MoS is also exploring the economic use of LNG as a geostategically relevant fuel for the Atlantic, Mediterranean and Black Sea areas. The results of this project – the COSTA project – are expected in late 2014.

Finally, MoS favours the creation of a knowledge network – building on local knowledge to tackle global problems. This initially started as a network of universities linked to MoS industrial stakeholders, promoting the integration of remotely dispersed experts and multidisciplinary expertise and making it available for education and professional training. The project will be ready in the middle of 2014 and so far has promoted de-centralised courses from Corridor Logistics to the use of LNG in ports.

TEN-T is trying to optimise use of Europe’s large maritime operations capacity, its technical expertise and European ports. The aim is to efficiently use and fully interconnect the over 90 ports in the Core Network and the more than 320 ports in the Comprehensive Network to the global logistics chain i.e. to Maritime and Land transport corridors.
3. A NEW DEFINITION FOR MOTORWAYS OF THE SEA

3.1. Revision of the TEN-T Guidelines

The new TEN-T Guidelines have cast a new definition for the Motorways of the Sea. The TEN-T Guidelines constitute the main regulatory basis for the development of the Motorways of the Sea. The Guidelines define the type of eligible actions and guide the financial support dedicated to MoS in the 2007-2013 programming period where an overall indicative amount of €310 million was flagged. The process of revising the current TEN-T Guidelines started in 2009 is now operationally concluded and is expected to be formally adopted by the end of 2013.

MoS are the framework for the development of actions covering maritime transport/ports and favouring their integration in the global transport chain. In the new Guidelines, MoS are part of the Core Network and link into the Comprehensive Network. They constitute an invisible but fully available transport corridor covering all of the EU’s coastal areas and will therefore be a key infrastructure implementation tool in the deployment and operation of the Comprehensive and Core Networks.

3.2. Financing – The Connecting Europe Facility (CEF)

For the 2014-2020 financial perspective, the TEN-T programme will be developed under the financial framework of the CEF (Connecting Europe Facility), which currently proposes €23.5 billion for transport projects. The CEF will be the main financing source for transport infrastructure projects in Europe.

Currently, Member States have a consensual position that MoS should be a horizontal priority in the CEF and that its financing rate should be 30% for projects and 50% for pilots and studies. These rates will only be finalised once there is a final agreement on the CEF.

3.3. Foundations for the New Guidelines

The new Guidelines do simplify and clarify the rules of engagement for MoS and re-affirm MoS’ aim to support studies, both masterplan style and the preliminary or final design type, which are common to all infrastructure projects. In addition, schemes such as pilot actions, the integration of intelligent infrastructure, and support to start-up services and the deployment of innovative technologies on ships (including retrofitting) are all different but common elements of a coherent MoS development programme. MoS needs to support the key elements of maritime infrastructure: safety at sea, environmental protection and efficiency of ports. Without investments in these areas, the maritime infrastructure will not be operational.

The new articles on MoS and priorities on CEF do clarify its role in unifying the Core and Comprehensive Networks, as well as the feeding services to/from other ports without which the core ports will not function. Europe is one of the major world trading partners and most of its trade exchanges are carried by maritime transport. Consequently, ports are the key nodes and ships the fundamental vehicles for trade, connecting European regions to their European or international partners. To properly support these activities, ports and ships must be able to efficiently interact between them as well as with the transport land network.

Finally, the Guidelines clarify the limits and types of incentives available to combine funding sources on MoS global projects in order optimise the use of available funding.
4. GEOSTRATEGIC AND TRANSPORT OPERATIONS ELEMENTS

The following text reflects the essentials of the MoS concept:

Motorways of the Sea shall contribute to improve accessibility and cohesion within the European Union. As part of the core network, Motorways of the Sea is the building block for the maritime dimension of TEN-T, covering the European maritime space. As such, it provides a platform for the development of all the activities required to efficiently reconcile all the key elements involved in maritime transport – ports, ships, human element and organisational systems and procedures; in order to achieve the safe, secure and sustainable maritime operations which are instrumental for European competitiveness.

Concerning the European Maritime space proper, activities will cover, inter alia:

- The safety of operations, e.g. ice breaking and year round navigation, human element, hydrographical surveys, safety information systems, dredging, navigation information systems, e-navigation;
- The environmental performance of ships, e.g. innovative waste and waste water treatment systems, improved reception facilities, environmental performance and dynamic ship indexing, improved ship and engine efficiency, reduced emissions as required for ECAS, environmental tailored design and retrofitting procedures as well as life-cycle analysis of ships including easy recycling and disposal and the use of electro-mobility or alternative fuels for ship propulsion;
- Traffic management and navigation services, e.g. support the deployment of improved vessel traffic management services (VTMS/VTMIS) and of their interface with ships, optimised bridge design and navigation systems as well as e-navigation services, tele-monitoring and remote maintenance and repair of ships, as well as navigation, reporting and positioning systems;
- Optimised ship operations, e.g. short sea shipping and sea-river operations, ship and port interface development to achieve efficient logistics operations.

4.1. Scope and key elements

Motorways of the Sea shall comprise the European maritime space where ships evolve coming to and from European ports, the safety and security procedures that permit sustainable operations, the traffic management services and the ports as the interconnecting points to other modes and final destinations for passengers and cargo thus guaranteeing both the accessibility requirements and the integration of the different services supporting a high volume of trade.

Concerning the interface ship, port and hinterland, the following activities shall be considered as priorities:

- Efficient connections from and to the core network ports, e.g. efficient multimodal connections to the European transport network and matching transhipment performances to other ships and other modes, avoidance of bottlenecks namely through terminal efficiency and infrastructure connections, support the deployment of physical infrastructure to integrate ship and port operations in the transport chain;
• ICT integration of ships and ports in the logistics chain: support to the continued development and deployment of single-window type of services and other e-maritime systems to streamline procedures and speed up the transportation process and the official clearance of cargoes. Support to the development of the institutional ICT layer where private services connect in order to exchange all the information required on a door to door type of transport;

• Favour the clustering of ports leading to an optimised use of common infrastructure and to larger economies of scale and thereby gaining efficiencies and avoiding bottlenecks, this will also entail the use of common information services;

• Support the development of infrastructure and ancillary infrastructure required for the development of sustainable shipping, e.g. enhanced shore based reception facilities, liquefied natural gas (LNG) infrastructure for refuelling and bunkering services, refuelling services and cold ironing systems;

• Support the development of geo-strategic ports which will guarantee the security of supply for maritime transport services thus avoiding critical stoppages on the flow of goods due to natural calamities or man-made causes. This will address ports, access to hinterland, terminals and ships.

4.2. Integrated Projects

The Motorways of the Sea projects will also embed the new type of dynamic infrastructure where transport modes and units, physical infrastructure and operational requirements and operations will be brought together and their integration optimised. This will result in a level playing field (framework) able to integrate public and private parties and their respective financing capabilities in the common endeavour of deploying equipment and infrastructure whilst developing effective and optimised operations. This operational infrastructure needs to be developed with door to door services in mind.

An example of this type of priority is the corridor-specific infrastructure project which focuses on infrastructure and facilities, having the objective of improving the capacity, frequency or quality of existing maritime links, or establishes new ones, as elements of the broader network of MoS in terms of logistic chain.

4.3. Implementation Instruments

Under CEF (Connecting Europe Facility) as in the past, the implementation of MoS projects should try and meet the stakeholders requirements. Given the diversity and type of projects which are covered under MoS, the instruments to be used cover studies, pilot projects including full-scale demonstration and development projects. In particular, the provision of innovative transport services will be paramount to support the development of efficient Maritime links.
4.4. TEN-T Methodology

Within the overall TEN-T methodology where the main nodes of the Core Network and the links between the main nodes are kernel and need to be identified, the parts referring to ports are very important for MoS and in particular rules referring to the Core and Comprehensive networks:

Core Network ports:

Sea or inland ports or road-rail terminals of an urban main node (S). Outside urban main nodes, sea or inland ports with an annual transhipment volume of at least 1% of the total transhipment volume of all EU seaports, based on linear interpolation between bulk and non-bulk. In insular Member States or NUTS 1 regions with access to the sea where no ports are classified according to the above criteria, as a general rule, along each continuous coastline only one seaport is classified as a main node. It shall be the largest such port, however taking into account also hinterland connectivity.

Comprehensive Network ports:

Ports with an annual transhipment volume of at least 0.1% of the total transhipment volume of all EU seaports.

MoS ensure the links between these main nodes.
4.4.1. Latest Version of the new text of the Guidelines

Motorways of the sea (Article 25)

1. Motorways of the sea, representing as they do the maritime dimension of the trans-European transport network, shall contribute towards the achievement of a European maritime transport space without barriers. They shall consist of short-sea routes, ports, associated maritime infrastructure and equipment, and facilities as well as simplified administrative formalities enabling short-sea shipping or sea-river services to operate between at least two ports, including hinterland connections[...]. Motorways of the sea shall include:

(a) maritime links between maritime ports of the comprehensive network or between a port of the comprehensive network and a third-country port where such links are of strategic importance to the Union;

(b) port facilities, freight terminals, logistics platforms and freight villages located outside the port area but associated with the port operations, information and communication technologies (ICT) such as electronic logistics management systems, and safety and security and administrative and customs procedures in at least one Member State;

(c) infrastructure for direct land and sea access.

2. Projects of common interest for motorways of the sea in the trans-European transport network shall be proposed by at least two Member States. They shall comprise:

(a) [...];

(b) a maritime link and its hinterland connections within the core network between two or more core network ports; or

(c) a maritime link and its hinterland connections between a core network port and ports of the comprehensive network, with a special focus on the hinterland connections of the core and comprehensive network ports.

3. Projects of common interest for motorways of the sea in the trans-European transport network may also include activities that have wider benefits and are not linked to specific ports, such as services and actions to support the mobility of persons and goods, activities for improving environmental performance, such as the provision of shore-side electricity that would help ships to reduce their emissions, making available facilities for ice-breaking, activities ensuring year-round navigability, dredging operations, and alternative fuelling facilities, as well as the optimisation of processes, procedures and the human element, ICT platforms and information systems, including traffic management and electronic reporting systems.

4. Within two years after being designated in accordance with Article 51, the European Coordinator for motorways of the sea shall present a detailed implementation plan for the motorways of the sea based on experiences and developments relating to Union maritime transport as well as the forecast traffic on the motorways of the sea.
5. OVERVIEW OF THE ONGOING PROJECTS

MoS currently has 31 ongoing projects, representing more or less €370 million in EU grants and a total investment of over €1.5 billion. The individual descriptions and progress of the projects can be found below:


5.1.1. High Quality Rail and Intermodal Nordic Corridor Königslinie:

The project was partially completed and ended in December 2011 at the request of the beneficiaries. Its main achievements are:

- Integration of IT systems of the Port of Trelleborg, CargoNet and Scandlines AB
- Adaptation of berths in the Port of Trelleborg (additional roadside ramps and wider breakwater)
- Extension and improvement of the Port of Trelleborg (reconstruction of four rail tracks, making double rail shunting possible, and new areas to handle and temporarily store intermodal units)

5.1.2. Motorways of the Sea projects in the Baltic Sea Area Klaipéda-Karlshamn link:

The project is being implemented with some delay. As a result of the detailed studies carried out on a first phase, some activities had to be reviewed (two cancelled) and their implementation adapted to the requirements of those detailed studies. An amendment of the Action will be necessary in order to extend the duration of the Action and modify the description of the Activities. The project is expected to be completed at the end of 2014.

5.1.3. Motorways of the Sea Esbjerg-Zeebrugge:

The Action has been successfully completed. It contributed to strengthening and the development of a Benelux-Scandinavia short sea connection — including the improved efficiency of the maritime link, additional investment in infrastructure and facilities and the adoption of accompanying measures to foster integration of various parts of the intermodal chain. As part of the project, the Ro-Ro (roll on, roll off) connection between Esbjerg and Zeebrugge was improved by constructing a floating Ro-Ro ramp and a Ro-Ro jetty, as well as by extending the port access way in Esbjerg.

5.1.4. Baltic Link Gdynia-Karlskrona:

All the project activities are at the implementation stage with an overall advancement of 80%. Activities related to on-shore power supply as well as the construction of the Alvesta combined terminal have been completed. The project implementation is being co-ordinated with improvement of port access infrastructure in Port of Gdynia, co-financed with the Cohesion Fund. The improvements in road access are complete, the rail investments are to be finalised in 2013.

5.2. Projects started in 2010 – State of progress on 31 March 2013

5.2.1. MOS 24:

The action is looking at the integration of MoS operations in the Priority Project Genova-Rotterdam: Logistics, interoperability and interfaces with the hinterland (e.g. Chabers of Commerce in Germany, Logistic platform in Liege).

The Action is progressing well. The activities related to the analysis of the context and the interoperability and design of the MOS 24 Platform are finalised. The activity linked to the
implementation of the MOS24 demonstrator is encountering a delay, which is not expected to have a negative impact on the end date of the Action. The remaining horizontal activities, related to communication and project management are being developed and are progressing, as intended.

5.2.2. Monitoring and Operation Services for Motorways of the Sea (MoS4MoS):

The Action was completed on 31 May 2012 as planned. The MOS4MOS Masterplan was drafted and publicly presented. 15 initiatives were identified and analysed in-depth. A Cost Benefit Analysis of the forthcoming implementation of the 15 initiatives was elaborated. Piloting and Demonstration resulted in the piloting and demonstration of all 15 initiatives included in the Action, clearly exceeding the initial target of three piloted initiatives.

5.2.3. MIELE:

The Action is on schedule, except from the activities implemented by CYPRUS [currently on full scale deployment], and Part A was completed and approved by the Peer Review Group.

The results achieved include:

- Collection and analysis of user needs, best practices and existing and/or under development standards.
- Approved design and specifications of MIELE Middleware and working concept of elaborated
- Identification of obstacles and possible solutions to implementation of Directive 2010/65 within and between the five Member States involved.
- Agreement on interoperability standards and MIELE architecture.
- Start of extended dissemination (toward Member States not part of MIELE) and improvement of website.
- Contacts established with IMO and ASEAN States.
- Two workshops organised
- Development of specifications for use cases for each National Vertical Pilot (pilots will be tested through demonstrators). E.g. in Portugal the currently existing single window is being extended into the logistics chain.

5.2.4. ITS Adriatic multi-port gateway:

The objective is to obtain a coherent port information system clustering the different ports involved (NAPA ports). The preliminary studies, including a port organisation and process analysis, marketing and prospective study and requirement identification and definition of standards, have been completed. The work for the Port community systems’ IT modules has been developed and is currently implemented and tested. A pilot EDI application for integration and data sharing is currently being set up.

Work on the improvement of the existing port community systems has begun and should be completed by the end of 2013.

5.2.5. Motorway of the Sea Rostock-Gedser:

The main objective is to adapt berths to the new vessels in order to achieve highly efficient operations. Port works in Rostock and Gedser (primary berth facilities) are on track. Most of the activities scheduled for 2012 were executed according to plan. Some activities are pending
due to delay of the arrival of new vessels.

5.2.6. The Baltic Sea Hub and Spokes:

The project addresses the clustering of the information systems in the three ports and the deployment of efficient port-hinterland connections, e.g. building a tunnel in Aarhus and a rail viaduct in Gothenburg. Parts of the project have suffered delays. The beneficiaries are undertaking the necessary steps and have put in place the required mitigation measures. Consequently the Action has been modified to take into account the activities that actually will be completed by the end of the Action and the overall budget and TEN-T co-funding have been reduced accordingly.

5.2.7. MonaLisa:

The project implementation is mostly on schedule and within budget. The dynamic and proactive route planning system has entered into the testing and validation phase, the studies on remote verification of officers’ certificates are on-going and the hydrographic surveys between Finland and Sweden have covered c.a. 23,000 km² out of 32,000 km² of sea-bed. The activity about global information sharing is ahead of planning by c.a. six months and the first system demonstrator has been made available on the project website.

5.2.8. LNG infrastructure of filling stations and deployment in ships:

The project is on the envisaged implementation track. The study part for LNG infrastructure has been completed; the LNG propelled vessels are to be delivered and tested by the end 2013.

5.3. Projects started in 2011 - State of progress on 31 March 2013

5.3.1. Adriatic Motorways of the Sea (ADRIAMOS):

The Action aims to enhance a viable, regular and reliable sea-based transport service integrated in the logistic chain along the Adriatic-Ionian transport corridor between the Port of Venice and the Ionian Sea/West Greece port cluster (Igoumenitsa and Patras), thereby contributing to the reduction of economic, social and environmental costs related to port and logistics activities.

In the Port of Venice the EIA assessment has been completed and the works for the construction of the new Ro-Ro have started with the construction of the docks and basin.

Igoumenitsa Port Authority has launched the call for the selection of the Technical consultant who will provide support for the development of preliminary studies for the establishment of a Freight Village in Thesprotia region, serving the freight from the Adriatic.

5.3.2. TrainMoS:

TrainMoS aims to support and train the human element of Motorways of the Sea by defining the basis for a future EU virtual open MoS University and knowledge network and by pulling together local competences and knowledge of different EU universities along with stakeholders’ needs.

TrainMoS has developed a MoS knowledge base at EU university level by testing a MoS knowledge platform (within an ICT infrastructure) through the preparation of seven EU wide pilot actions in seven EU countries (Spain, Portugal, Sweden, Germany, United Kingdom, Italy, and Greece).
5.3.3. LNG in Baltic Sea Ports:

The aim of the proposed Action is to develop a harmonised approach towards LNG bunker filling infrastructure in the Baltic Sea region. The project is being implemented according to schedule with slight delays in Tallin, Turku and Copenhagen/Malmo ports. The activity taking place is Helsinki has been completed.

5.3.4. COSTA:

The COSTA Action aims to develop framework conditions for the use of LNG for ships in the Mediterranean, Atlantic Ocean and Black Sea areas. It will result in the preparation of an LNG Masterplan for short sea shipping between the Mediterranean Sea and North Atlantic Ocean as well as for deep sea cruising in the North Atlantic Ocean towards the Azores and Madeira. The development scenarios will focus on the forthcoming requirements for the implementation of the requirements of Annex VI of the MARPOL Convention and on the objectives of the EUs Clean Power Communication (the Directive is being discussed in the European Parliament).

The project implementation is progressing according to the plan. The first interim technical report on proposed LNG scenarios has been prepared and validated by the first project workshop for stakeholders. The activity on LNG solutions is underway.

5.3.5. IBUK – intermodal corridor:

The proposed action aims to improve MoS capacity along a corridor from the Iberian Peninsula to the UK. The proposed Action’s main objectives are to increase modal shift from road onto the Spanish hinterland rail network and to improve the efficiency of the link in the multimodal transport chain of this corridor; in particular ensuring that the MoS route from Bilbao to Tilbury has suitable infrastructure, superstructure and information technology to handle the forecasted increase in cargo volumes. The project has started as planned, with certain infrastructure activities slightly delayed whereas the IT pilot activity is progressing as planned.

5.3.6. Green Bridge on Nordic Corridor:

The Action has primarily made progress in the Ports of Trelleborg and Rostock. On the other hand, the significant changes to general scope of work caused delays in the implementation of the activity related to the introduction of emission reduction technology, with some repercussions on the related activities, linked to some preparation and civil engineering works.

PROJECT CANCELLED FOLLOWING WITHDRAWAL OF THE BENEFICIARIES.
5.4. Projects to be started in 2013

5.4.1. LNG Rotterdam Gothenburg:

At present, the European market for LNG fuel for maritime transport is limited and infrastructure is almost inexistent for small-scale supply of LNG. The market requires the ports to have LNG bunkering infrastructure, while the ports expect sufficient LNG demand to build infrastructure.

To solve this situation and develop the maritime LNG sector, the present Action will create break bulk infrastructure for small-scale LNG supply in the Ports of Rotterdam and Gothenburg. These large ports combined have a critical mass to assist in the market transition to maritime LNG in northern Europe.

The combined facilities for fuelling ships and trucks in both ports will create a synergy effect to address the importance of providing alternative fuel solutions for transport.

5.4.2. SEAGAS:

The Action aims at determining the feasibility of implementing LNG bunkering facilities in the Port of Roscoff (north-west of France) and the Port of Santander (north of Spain). The studies will take into account the conformity of the infrastructures and the equipment with the standards for risk prevention (SEVESO Directive), and the eventual constraints, to be revealed by the environmental impact assessments studies and the public inquiries.

The project will contribute to the development of the Atlantic Motorway of the Sea as a wider benefit action, serving all the shipowners operating in the region and looking into synergies of different transport modes.

5.4.3. Monalisa 2.0:

The overall objective of MONALISA 2.0 is to strengthen efficiency, safety and environmental performance of maritime transport, at the same time as the administrative burden of the maritime sector will be reduced. Therefore the project will be developing new Sea Traffic Management Services by integrating available information from certified traffic management and other information systems as well as developing solutions to capture missing information.

Nine Member States are involved in the studies, which include:

- Testing concrete applications and services which would allow short-term commercial deployment for the navigational part of Sea Traffic Management;
- Taking joint private-public action to elaborate better standards for maritime route exchange through a common interface and data format;

Demonstrating concrete services using new technology to enhance maritime safety, making search and rescue and mass evacuations more efficient than today and by addressing port safety.
5.4.4. Winter Navigation Motorways of the Sea, WINMOS:

Sufficient icebreaking resources for the next coming years will be ensured by life extension measures executed on four Swedish icebreakers built in the ’70s and a new building of a Finnish state-owned icebreaker. These vessels are together a prerequisite for winter navigation in the Northernmost Baltic Sea area.

The Action will contribute in particular to formulation of an icebreaking long term strategy in the Baltic Sea, improvements of the environmental performance and fuel saving on old engines aboard an existing Swedish icebreaker, piloting new fuel injection technique (common rail) on other icebreakers as well as upgrading the existing Icebreaking Management System, IBNet, to the contemporary needs. Software for training simulators for winter navigation will be upgraded to become more realistic.

5.4.5. LNG Bunkering Infrastructure Solution and Pilot actions for Ships operating on the Motorway of the Baltic Sea:

The aim of the Global Project is implementing three pilot actions for LNG, methanol and the use of scrubbers. These pilots look at meeting the sulphur legislation in 2015 in the Sulphur Emission Control Area and support the development of a competitive and environmentally sustainable shipping sector in the Baltic Sea.

The Action is composed of works and studies. The works aim at the implementation of an LNG bunker supply infrastructure for the use of LNG at the Port of Brofjorden in Sweden. The technical studies aim at the deployment of new LNG technologies in full scale Pilot Actions in vessels in the Baltic Sea and in the North Sea.

The Action will establish LNG bunkering infrastructure including the components required from the terminal to bunker vessel, and from the bunker vessel to the LNG fuelled vessels.

The deployment of new LNG technologies will result in demonstration of full scale solutions of vessels in commercial operation in the Baltic Sea and in the North Sea, as well as design recommendations, recommended best practices for operation, and suggestions for development of rules and regulations. The Action will additionally investigate financial mechanisms to support ship-owners/operators in converting their fleets to new technology.

5.4.6. PILOT SCRUBBER – New Generation Lightweight Pilot Scrubber Solution installed on a Ro-Ro Ship operating on the Motorway of the Baltic Sea:

This Pilot Action specifically addresses the use of scrubber technology for abatement of sulphur oxides from ships’ exhaust emissions and aims at reduced environmental impact of shipping and to achieve IMO MARPOL Annex IV SECA requirements by:

- Installation, evaluation and demonstration of a new generation, innovative lightweight scrubber technology in full scale on existing Ro-Ro vessels TransAtlantic Transpaper type and Wagenborg Schieborg, operating in the Baltic Sea and in the North Sea;

- Verification and evaluation of the specific port infrastructure and preparatory investments needed for a full scale implementation of the new generation scrubber technology;

- Expected results are to find viable solutions to meet the SECA requirements by the use of new light scrubber technology. The results would greatly improve the competitiveness of the shipping sector versus other modes of transport and thus reduce the environmental impact from transports.
5.4.7. **TWIN-Port:**

The proposed upgrading of the transport system of the Ports of Helsinki and Tallinn links the existing European corridors and axes together. TWIN-PORT is an upgrade of an existing but inefficient maritime transport link between the Ports of Helsinki and Tallinn. It is an important link with direct connections the Nordic Triangle Rail/Road Axis (PP12) and Rail Baltic* axis: Warsaw-Kaunas-Riga-Tallinn-Helsinki (PP27). The activities concerns:

- Development of Helsinki West Harbour:
  - Port infrastructure and access developments;
  - Traffic system and access improvements;
  - Use of automation and new technology;
- Development of traffic solutions of terminals A, B and D in Tallinn Old City Harbour;
- Study regarding Tallinn-Helsinki Ro-RoTraffic Scenarios.

5.4.8. **Kvarken Multimodal Link – Midway Alignment of the Bothnian Corridor:**

This Motorway of the Sea project looks at upgrading the transport link between northern Sweden and western Finland, including land and waterborne transport systems. It composes of designing, constructing and improving the transport links through new transport patterns, multimodal logistics and cost efficient solutions, including:

- **Works:** infrastructure investments made in both countries in order to improve port logistics, rail connections and port intermodality;
- **Capital costs:** start-up aid for a temporary ferry, including the necessary upgrading and adjustments made and planned for this temporary solution. The upgrading and adjustments will be used as examples during the analyses and concept development;
- **Studies:** which include an analysis of traffic management and organizational aspects of the transport link, as well as the development of a transport concept to meet the needs and provide a good foundation as input for the detailed design or procurement of a ferry.
5.4.9. Methanol: the marine fuel of the future:

This pilot action will test the performance of methanol on the existing passenger ferry Stena Germanica operating between the ports of Gothenburg and Kiel. The Stena Germanica is the world’s second largest Ro-Pax ferry. The running of the Stena Germanica on methanol will allow the vessel to comply with the new Sulphur Emission Control Area rules ahead of the 2015 deadline.

The proposed Action will provide the real “live test” to prove the feasibility of methanol as a future fuel for shipping, deliver the engine conversion kit which can be further implemented on other ships, and provide the important and ultimate piloting culmination of many years of research.

In addition to retrofitting the vessel, the pilot action will also create the appropriate port infrastructure for the supply of methanol for bunkering: a bunker vessel and a storage tank will be built to carry methanol, as well as the corresponding facilities in both ports.

5.4.10. ANNA – Advanced National Networks for Administrators:

The overall objective is the adoption of the national Maritime Single Window and electronic data transmission for the fulfilment of reporting requirements for vessels entering and departing European ports in accordance with EC Directive 2010/65/EU.

- The development of a common implementation framework for EU Directive 2010/65/EU to ensure appropriate (European) interconnectivity;
- The development of national scenarios and a mechanism for gauging degree of national implementation;
- Interaction and involvement of administrations and business where necessary in accordance with this Directive;
- Development of a 2015+ strategy, possibly connecting the various national Maritime Single Windows to national logistics platforms, to be included under the Master Plan "Extended Collaboration";
- Trade facilitation.

5.4.11. Business to Motorways of the Sea:

The main objectives of the Action are:

- Preparing port management, Port Community Systems (PCS) and business stakeholders’ systems to efficiently comply with the requirements of Directive 2010/65/EU and with new National Single Windows;
- Improving interoperability of electronic messages and systems for the exchange of crucial transport documents such as the electronic manifest, sea waybill, rail consignment note and commercial invoice;
- Extending the electronic T2L initiative (electronic proof of Community status of traded goods, already elaborated in MOS4MOS), piloting its interoperability among Member States and promoting mutual recognition among Member States of the proof of EU Community Status by electronic means;
- Improving the exchange of information of public and private organisations and promoting their operational cooperation to increase the efficiency of MoS.
5.4.12. WiderMoS:

The Action will improve long term effective and sustainable connection between the sea and other transport modes (mainly rail) by developing new port/ship/train interfaces and will contribute to kick off the analysis of how MoS will be linked to the governance model of the TEN-T priority corridors.

The expected results are:

- Five Pilot Projects, demonstrating the effectiveness of a better structured interoperability between modes, with particular integration of MOS in the new multimodal transport corridors;
- A supporting activity defining the medium term state of the art and prospective options for MoS into 2020;
- A deeper analysis of 4 very specific topics concerning the role of MoS in the development of the TEN-T core network corridors governance model.

5.4.13. Sustainable Traffic Machines – On the way to greener shipping:

This Pilot Action covers the installation of hybrid propulsion and exhaust gas cleaning solutions on 2 RoPax vessels deployed on the maritime link Rødby-Puttgarden. The ‘Traffic Machine’, a combined freight and passenger maritime service, represents a perfect fit for the market-oriented test and real-life demonstration of the planned innovative and prototype solution.

The innovative concept, to be tested within the Action, is based on a two-stage approach: reducing the vessels’ total energy demand and allowing for the installation of the smallest possible scrubber configuration (minimizing negative characteristics like weight, stability and space/payload issues).

Energy savings will be mainly achieved by installing new sets of propellers and a hybrid drive, representing the world’s largest ever marine hybrid solution (battery capacity: 2,6 MWh). The Action provides a new standard of hybrid technology leading to pure battery operation and long-term zero emission targets.
6. THE IMPACT OF 2020 PRIORITIES ON MOS

The Europe 2020 strategy for smart, sustainable and inclusive growth contains important guidance and support for many necessary MoS developments.

6.1. Funding

The new Guidelines stress the need to coordinate the mobilisation of public funding - Structural Funds, Cohesion Fund, R&D framework programme, TENs and EIB in order to achieve MoS goals - and stimulate the smart mix and use of these funds. This has already led to the creation of the Motorways of the Sea One Stop Helpdesk, set up in 2010, to give advice to stakeholders and other interested parties on the best source of support for their specific project (www.mos-helpdesk.eu).

6.1.1. Economic and Financial Background

- Creating innovative instruments to finance the necessary investments, including public-private partnerships (PPPs): this will be particularly suitable for logistics platforms, "dry ports" (like the ones in Bologna and Zaragoza) and even port terminals;

- Fostering European growth through our participation in open and fair markets world wide: this aim will only be achieved if a system of efficient ports is in place, assuring good external connections.

6.2. Research

- Modernising and de-carbonising the transport sector: Past reports proposed new research in the field of fuels (energy efficiency, economics). This report also puts emphasis on pursuing research on efficient engines, catalysts and scrubbers, as well as efficient hull and propeller design.

6.3. Innovation

- Inspired by previous MoS reports, on-going pilot actions now show how to give impulse to the development of a good mix of research, the setting up of common industrial standards and the development of the necessary infrastructure to achieve the deployment of innovation in daily life practices;

- Developing a deeper knowledge of the implications of the different types of fuels which can be used, particularly on their environmental impacts (NOx, SOx, CO2 and particulates): There are great expectations that Liquefied Natural Gas (LNG) may drastically improve the current situation. Nevertheless, LNG poses a number of challenges such as safety requirements, distribution networking and shipping economics. This new field requires further investigation, either by gathering current knowledge and integrating multi-disciplinary issues or by identifying and supporting the development of required research actions and studies to address technical problems.
6.4. MoS deployment issues

6.4.1. ICT Infrastructure, applications and Intelligent Transport Systems – ITS

- Improving and fostering intelligent traffic management systems and services, ranging from the single window to the interface of road and railway systems with port systems;

- Developing an effective space policy to provide the tools to address some of the key global challenges and, in particular, to deliver the two satellite constellations Galileo and GMES, focussing on tracking, positioning, safety, security and environment. The suggestion regarding chips (tags) either for vessels or for containers comes under this umbrella;

- Developing smart, upgraded and fully interconnected transport infrastructures and make full use of ICT: the integrated MoS transport chains being implemented are a good practical example.

6.4.2. Clustering of ports and development of corridors

- Ensuring a coordinated implementation of infrastructure projects, within the EU Core Network, which critically contribute to the effectiveness of the overall EU transport system: there are many practical examples under this theme, e.g. the connection of the round-the-world trip, location of new transhipment ports in the Mediterranean Sea, railway corridors between north and south, articulation of a grouping of ports, and a deeper knowledge of the flows which cross the Suez and Panama Canals;

- Accelerating the implementation of strategic projects with high European added value and addressing critical bottlenecks, in particular cross border sections and inter-modal nodes (cities, ports, logistics platforms): both safety devices for ships (see EMSA) and chips for containers are of particular importance. The banning of “convenience flags” for European companies or companies wanting to call on European ports must gradually be implemented.

6.4.3. European Internal market and logistic chains

- Reducing the transaction costs of doing business in Europe: improvement of the efficiency and competitiveness of logistics chains has been a repeated recommendation;

- Promoting better logistics: This requires a global approach, ranging from the construction of logistics platforms to the training of the numerous professions in the field. The importance of this field has been systematically underlined in all previous reports.

6.4.4. External Trade

- Ensuring that transport and logistics networks enable industry throughout the EU to have objective access to the single market and the international market beyond: this is the main purpose of the geo-strategic considerations regarding connections with the Far East, South and North America and Africa;

- Developing transport solutions which reflect a closer partnership with Canada and the United States that will generate new and important trade flows (850 Mpersons);

- Developing consistent transport connections and services with the Mediterranean and Black Sea/Eastern partnerships, making the transportation systems interoperable and networkable;

- Developing a closer partnership with Africa and Latin America: ports are are essential factors in this development. Ports in Europe, Latin America and Africa must cooperate, in addition to everything else that comes as a result of MoS and its connection of ports with their hinterland;
The EU has prospered through trade, exporting round the world and importing raw materials and finished products. Consequently, MoS needs to take the wider external dimension and related aspects into account, such as transhipment ports, the Suez and Panama Canals, connections to Africa and South America, impacts of round-the-world trips in the Mediterranean Sea, port hubs and new transhipment ports in the Mediterranean (besides Marsaxlokk, Gioia Tauro, Algeciras and Tangiers-Med).

6.4.5. Education, Training and employment

- Insisting on Education, Training and Lifelong-Learning: New training for the numerous professions linked to maritime transportation, logistics and operations in harbours must be implemented. This is fundamental for the provision of a good level of initial training rather than the on the job training currently used today;
- Promoting polycentrism through the networking of local port/city Universities – tackling global problems with local knowledge;
- Promoting student mobility and trainers’ mobility, and improving the employment situation of young people;
- The Coordinator has suggested setting up an Erasmus type programme for maritime professions, using merchant marine schools in Europe. This could eventually lead to the creation of a council of schools at European level. Countries without apparent problems (Greece, Romania, Latvia and Norway) could induce more dynamic action on the others.

6.4.6. Promoting efficient, sustainable and competitive maritime transport: Blue Links

There is a market demand for innovative projects using new operational concepts, and new financial engineering solutions should be promoted. The “blue links” approach is a promising system as it targets the support of all partners involved in a trade and transport venture in order to get competitive transport solutions, whilst using technological innovation and environmentally friendly solutions.

The system will be open and of European wide application, thereby avoiding regional distortions or distortions of competition. However, Member States and private operators concerned by such a scheme must first agree on common methodologies to assess potential benefits and consequently define practical terms of support. This new approach effectively aims to replace or phase out outdated financing schemes such as Marco Polo or Ecobonus. The main advantage of the new blue links scheme is that it favours the emergence of integrated maritime operations meeting the new environmental and technical requirements embedded in the TEN-T Core Network and will pave the way for the achievement of a more competitive European market.
7. LIST OF DEVELOPMENT PRIORITIES

The definition of criteria allowing the identification of funding priorities for projects labelled as Motorways of the Sea needs to be improved, and the new TEN-T Guidelines and the CEF will provide the ideal basis. As clearly stated in all relevant meetings held throughout the year, priorities are to fund both infrastructure (hinterland connections and within ports) and intelligent infrastructure (procedures, vehicles and cargoes).

Operations, although of great relevance and the ultimate goal of activities, are not the primary objective of TEN-T funding. There are funding schemes better adapted to fund private sector operations (maritime, ports or other), such as the Marco Polo programme, and obviously because before any operations can start the infrastructure needs to be in place. Accordingly, TEN-T concentrates on developing infrastructure. This is highly time consuming, taking on average ten years from preliminary studies to operation.

Finally, priority should be given to studies. Any large infrastructure investment project requires both preliminary and detailed studies to be completed prior to building works or final investment decisions. Furthermore, for a wide and complex subject such as MoS, studies also need to include the operational and team building component, i.e. the platform necessary to bring together all key actors, as well as the platform to be used as an integrator of technologies and operational requirements. Such a venture prototype needs to be supported by a dedicated tool. The proposed studies in the form of pilot actions seem to be adequate.

In order to better clarify the different funding and development priorities an indicative list of the most important MoS elements is given as follows:

7.1. Within port areas

- Railway connections to quays and piers;
- Superstructures, and systems allowing for more efficient flows of goods and better coordination of administrative procedures (one stop shop/guichet unique) e.g. customs, health and sanitary, veterinary police, emigration, security screening devices and port operations’ services;
- Superstructures, construction works and equipment aiming to create efficient management of cargo flows in the port area, e.g. port gateways, cranes, piers, etc;
- Dredging of berths and canals to keep navigation or to increase the size of the target vessels;
- Alternative re-fuelling facilities for ships (e.g. LNG bunkering);
- Promotion of the role of European ports and the MoS network. Once the new TEN-T network is defined, the core network of ports and MoS should be promoted in a brochure outlining its operational characteristics and potential, based on common indicators (such as on similar UNCTAD reports).
7.2. Hinterland connections

- Connections to the hinterland for railways, inland waterways, motorways and, logistics platforms located in the interior;
- Building of logistics platforms and dry ports;
- Junctions, bridges, tunnels and other access elements that could improve connections to the hinterland;
- New railway lines or sections, bypasses and other upgrades which could help lower travel time and increase punctuality;
- Integrated MoS systems, such as single window and/or port community systems, connecting shipper and receiver and facilitating the development of door-to-door operations and services (systems connecting ships/ports/hinterland and services operators).

7.3. Telecommunications

- Port information systems, vessel traffic management and information services, river information services (within the ports and when interfaces occur);
- Port community systems interfacing with logistics information systems (e.g. single windows);
- Developing transport solutions and systems to implement the objectives of the reporting directive (directive 65) coming in force in 2015;
- Intelligent infrastructure, e.g. tracking and tracing devices, terminal info systems;
- Tracking and tracing systems and services for goods and vehicles (ships, port and inland vessels, ports and hinterland);
- MoS information systems, integrating vessels, VTS, port community, interfaces with other modes (e.g. ITS, ERTMS and RIS) and with intermodal platforms and business information interfaces. This will be of paramount importance for the logistic integration in corridors using and fulfilling policy concept such as “Blue Belt” and “Blue Lane”.

7.4. Ships

- It has been suggested that vessels and re-fuelling barges should be considered a special type of infrastructure, in particular when large retrofitting is required to accommodate new equipment and/or when innovative equipment has been installed on a new build (e.g. engines for a new type of fuel, scrubbers, etc);
- Further discussion with stakeholders on this theme is required, in order to define the conditions under which the construction or the acquisition of a ship could be considered a funding priority.
7.5. Human Resources

- Maritime Industry requirements are ever evolving hence priority should be given to continuous new training on safe and efficient maritime operations covering the whole range of staff involved in maritime operations: from seamen to pilots, VTS operators, dockers and crane operators, etc;

- Training on the efficiency of processes in the transport chain needs to be provided to both operational and administrative staff, and training in logistics needs to be provided for all the actors in the MoS chain;

- A MoS Erasmus scheme should be encouraged all round Europe as well as virtual networks connecting European ports and local training centres.
8. CONCLUSIONS AND RECOMMENDATIONS

Motorways of the Sea has, so far, been a key factor for the development of maritime transport. By supporting maritime areas such as safety, security, protection of the environment, training, information management and efficiency and competitiveness, which are instrumental for the development and operation of any transport mode or system, MoS has played the right methodological approach and constituted a fundamental contribution to the new TEN-T network bringing the right complementarity required to the development of corridors, as it bridges the gaps between the corridors through the maritime continuum that it represents.

In practical terms, this translates so far as the deployment of 31 development projects already described.

The MoS priorities that need to be pursued are fourfold:

- Support Europe’s trade, in particular external trade: i.e. concentrating on actions fostering the smooth flow of external European trade and exploiting four natural geographical pathways for trade: Atlantic, North Sea and Baltic, Mediterranean-Black Sea and Suez Canal. The new opportunities opened by the North Sea route gateway (including Artic access) were also taken into account. Examples: Baltic Sea Hub and Spoke, Adriamos;

- Fostering maritime transport within the internal market (e.g. Short Sea Shipping). Examples – single window: Miele, Mos4mos and Mos24;

- The cornerstone elements which allow for maritime transport - safety, protection of the environment, traffic management and training - as well as specific regional requirements, such as year round navigation, were also taken into account. Examples: Monalisa, Trainmos, LNG infrastructure, LNG masterplan for Baltic ports, Costa, Green Bridge on Nordic Corridor on shore power supply and re-fuelling strategies and infrastructure development for Rotterdam and Gotheburg (this twinning reflects a common strategy aiming at developing a similar geomorphological potential, i.e. Deep Sea, Short Sea and Inland Navigation);

- Developing ports to perform their required role as the main gateway for European trade has included port development, port-ship and port-hinterland improved interfaces. Examples: Trelleborg-Sassnitz link, Klaipeda-Karlshamn link, Esbjerg-Zeebrugge link, Gdynia-Karlskrona, Rostock-Geddser link, Baltic Sea Hub and Spoke, Ibuk.

The fulfilment of these priorities will guarantee the full and smooth integration of maritime transport operations in the European logistics chain and support global trade operations.

8.1. What should be done?

During the past six years, the Coordinator has visited many European ports and discussed with hundreds of European actors interested in MoS ranging from master mariners, politicians, planners, businessmen, pilots and terminal operators to port managers, mayors, freight forwarders, civil servants, engineers, scholars, shipowners, ministers, traffic managers, road hauliers, shipbuilders, and shippers. All play a different role but share a common goal – they all support and believe in an increased role of maritime transport as a key development factor for a better Europe.

Although much has already been done and is on-going much more is yet to be done hence it is worthwhile to underline and summarize the stakeholder’s requirements surveyed and collected during six years of meetings with the industry and Member States.
The Coordinator has summarised some of their visions and ambitions in the following 14 recommendations for European MoS support priorities:

1. Development of integrated port infrastructure (trade, procedures, movement of goods, information systems, superstructure, vehicles and operations). Key enablers are: close cooperation between port authorities and city/regional authorities, port masterplans, and a good networking between the port community and the cargo owners (shippers). The formation of port communities should be fostered. Finally, certification of port activities or at least of port management should be widely promoted and implemented;

2. Improved hinterland infrastructure connections, development of the missing links and value added links in the door-to-door transport chain integrating sea legs. MoS logistics will become a key element for industrial logistics. In the future land-locked countries should be called to actively participate in defining their requirements and identifying key coastal connections. MoS will be instrumental to the development of any TEN-T Corridor;

3. Deployment of intelligent infrastructure services (e.g. tracking and tracing) to better reconcile the shipper and its goods, increasing safety and security and allowing for a fully controlled just in time delivery system. Concerning the actual development of the European maritime space without barriers, EMSA already operates the key maritime electronic information management tools which are required to deploy the system;

4. Promote activities and launch studies to better understand how to help the sector. Areas to be covered range from the identification of trade patterns within the internal European market (origin and destination matrix), to benchmarking efficiency in transport chains and nodes and on how best to foster cooperation among ports and co-modal actors to facilitate the deployment of innovative technologies. Each port should have an observatory monitoring both its hinterland and foreland;

5. Support for the articulation of ports and port activities (ranges, gateways, hub and spoke) exploiting know-how and comparative advantages, creating a favourable environment for the development of new business opportunities and services. This articulation of ports will lead to an improved capacity service for transport corridors as connection to the sea will be done through a delta of ports instead of one single port. This is an important concept for regional development as it will increase critical mass and flexibility, thus offering better and more diversified services to the market. Foster the permanent dialogue between cities and their ports – there must be a joint development pact, a win-win venture, reinforcing the natural ties between cities and their ports;

6. MoS would enormously benefit from improved education, training and cooperation efforts throughout the entire human element pillar in the area. This refers both to on-board staff and the numerous shore based professions which require knowledge in logistics as the basis of their know-how. A European-wide and comprehensive effort to improve education, training and attractiveness for maritime transport related careers needs to be launched. It should lead to the development of a MoS Erasmus type network – i.e. building on an aggregated European knowledge to improve access to knowledge, whilst keeping a sustainable diversity of training places;

7. Develop actions and information systems to integrate procedures and operations in a one stop shop for the entire chain: foreland (shipper), feeder, port, shipping operator, port, feeder, hinterland (receiver). Clearly promote wherever and whenever possible the use of sea-river technologies, systems and services;

8. Support the launch of actions aimed at fostering research and technological development to develop ships and equipment with reduced emissions and increased safety and environmentally friendliness as these measures will have a very positive impact on MoS. It’s important not to forget that ships require many innovations to keep abreast of change. Cruise ships have immensely innovated and the other types of vessel should follow example;

On the technology side, the objective is to develop studies and pilot actions on the use of different types of fuel, giving priority to LNG, addressing inter alia: shipping economics, operational strategies and LNG supply logistics, and support the devopment of masterplans for deployment in ports. Further research may be required on retrofitting techniques, energy efficiency and ship’s structural design.

Concerning foresight, strategic transport research policy actions, with clear areas of priority,
need to be established for maritime research in general and for MoS in particular in order to boost the sector in a similar way as in the mid-1990s (e.g. short sea shipping, maritime safety and competitiveness in shipping). Furthermore, the EU should promote and improve the gathering of statistics concerning ports, maritime transportation, shipowning, hinterlands/forelands trade patterns, etc.

9. Better articulate the different funding frameworks, whilst respecting their specificity in order to avoid duplication and achieve critical mass for innovation and change. Coordination of the different MoS funding is fundamental to achieve effective promotion and development of MoS. The creation of a single dedicated funding for MoS would be instrumental for this. An MoS development policy needs to target PPPs as the ultimate tool for deployment and target users on the demand side as its prime objective/customers (innovative financing);

10. Simplify bureaucracy where possible and facilitate the use of benchmarked solutions in support of competitive maritime operations (Blue Links);

11. Extend the reach to neighbouring countries and Africa, supporting the development of complementary efficient logistics chains in the Mediterranean and in the sub-Saharan regions. Improvement of port management in Africa should be our first cooperation priority. In particular, third country cooperation should have due regard to connections with Black Sea and Eastern neighbouring countries (e.g.Ukraine, Belorussia, Russia and Moldavia) and Eurasia (especially Kazakhstan), which are very much dependent on railway connections to European ports and on changing-of-gauge devices. The development of a coherent transport network supporting increased trade relations should be our priority for the development of cooperation with Magreb and Mashrek countries as well as for the Black Sea and Eastern partnership countries;

12. In order to collect strategic information, foster the development of geo-strategic studies addressing the maritime connections of Europe with our main trade partners in the world and try to define a global view of the challenges that we have to meet, the importance of Europe/US traffic cannot be overlooked, as it still represents about one-third of the total European traffic. The trade and Cooperation agreement to be soon signed with Canada and the one announced as a strong short term objective by the President of the US, would transform the EU and North America into a global market of 850 Mpeople which would generate an explosion on maritime freight operations implying extremely efficient logistics in particular concerning information and port-hinterland efficiency.

13 Increased cooperation with Central and South America. South America represents app 380 Mpeople and Central America more than 40 Mpeople. Again this represents a potential market of more than 900 Mpeople, generating a trade that must be carried by ships and efficiently transferred to the hinterlands.

14. Support the development of more electronic customs' services, to drastically simplify procedures whilst improving security. Customs operations are very complex and important and therefore need to be streamlined in order to increase the efficiency of ports and thus of the whole logistics chain, which rely heavily on customs for the quality of their operation. Supporting the development and practical application of Directive 65 on "ships' mandatory reporting" as well as to IMO's "FAL" Convention is crucial.

The Coordinator expects that many of these recommendations, as well as the example set by the 31 new TEN-T projects will be followed and implemented in the forthcoming years, paving the way for a more efficient and innovative European transport system.
9. CLOSING REMARKS

31 TEN-T MoS projects have been already implemented, representing a total investment of over €1 billion. They demonstrate that the MoS framework constitutes a strong platform for the implementation of technical concepts aimed at improving the quality of maritime operations and their integration in the global transport chain.

The promotion of MoS has further boosted the development of many small actions that have improved port infrastructure, information systems and the efficiency of maritime operations, as well as the development of better infrastructure connections between ports.

MoS has been the precursor for identifying and promoting innovative issues with practical solutions, e.g. intelligent infrastructure and LNG technologies. In both cases, pilot actions have been developed which are expected to deliver practical results in 2013 and following years. Unifying rather than fragmenting, MoS activities play a coordinating role, fostering the development of operational standards and common procedures, as well benchmarking operations. In short, MoS translates policy requirements into practical and concerted European solutions.

The programme also provides a sound basis for cooperation between ports and sea regions, such as in the Baltic area. A common understanding on ice operations, environmental protection and traffic safety is steadily developing and helping to reinforce these collaborations. Other sea areas (e.g. the Adriatic) are developing partnerships leading to an articulation between different ports and countries (e.g. the northern Adriatic range), addressing common strengths and weaknesses, and thereby increasing the attractiveness of these regions. International cooperation with neighbouring countries and regions, such as the Mediterranean and Black Sea areas and Africa, has also been initiated.

MoS makes smart use of different implementation tools, taking advantage of the array of financial schemes and funding tools available. In general, Marco Polo finances services while TEN-T focuses on integrated infrastructure development (both physical and information systems) for ports and their hinterland connections (e.g. logistics centres). TEN-T had an indicative budget of approximately €300 million for MoS for the 2007-2013 programming period, reality exceeded expectations and TEN-T MoS has already granted 370 M€ for concrete projects and, at least 80 M€ are foreseen to support further MoS actions in the last Call of the period intended to open in December 2013. In the 2014-2020 financial period support for Motorways of the Sea is expected to greatly increase to levels adequate to its relevance: more than 70% (in tonnes) of external trade and almost 40% of internal trade.

Harvesting opportunities, short term actions to meet market demands:

- Smooth integration in TEN-T Corridors (hinterland connections);
- Meeting the SECA challenges for January 2015 (LNG, scrubbers, re-fuelling, etc);
- Harvesting the SECA market opportunities – e.g. newbuildings, retrofitting, green shipping, innovative port bunkering and revival of the European Shipbuilding industry - building new ships and retrofitting existing ones to meet the European market demands, masterplan until 2020;
- Increasing safety and security standards by stimulating voluntary industrial actions.
The new priorities and tools which will be proposed both in the final 2013 TEN-T call (expected in December 2013) and the future calls of the CEF, will provide the financial support required for continuing change. Pilot actions will continue to be instrumental as they are expected to continue to raise interest among stakeholders. This type of tool allowing for adequate compensation of "prototype costs" may represent the ideal basis for testing a venture without touching on competition issues. It will enable the embracing of technical, operational and procedural issues and the emulation of resulting transport operations, allowing for the start-up of the commercial phase immediately upon completion of the pilot action.

A new field must be added – that of the Dissemination and Promotion of Results and Good Practices. The Commission should exploit the wealth of technical and operational knowledge supporting and promoting the dissemination of results – this would benefit all stakeholders and would reward competence and merit, paving the way for easier acceptance of new solutions and wider deployment of sharp technologies hopefully also contributing to spur investment and growth

By providing support to the development of highly complex technical tools for efficient transport operations such as information systems and customs requirements interfaced with electronic cargo manifests and logistics information systems, MoS is bringing innovation to the real world and making a definite claim on its ability to support European growth and competitiveness.
This pilot action will test the performance of methanol on the existing passenger ferry Stena Germanica operating between the ports of Gothenburg and Kiel. The Stena Germanica is the world’s second largest Ro-Pax ferry. The running of the Stena Germanica on methanol will allow the vessel to comply with the new Sulphur Emission Control Area rules ahead of the 2015 deadline.

In addition to retrofitting the vessel, the pilot action will also create the appropriate port infrastructure for the supply of methanol for bunkering: a bunker vessel and a storage tank will be built to carry methanol, as well as the corresponding facilities in both ports.

The project will bring benefits to the Motorways of the Sea (TEN-T Priority Project 21) on the Baltic Sea as well as have positive impacts on the cohesion of the entire Baltic Sea region.

The results of the Action will be shared publicly with the maritime industry.
LNG Bunkering Infrastructure Solution and Pilot actions for Ships operating on the Motorway of the Baltic Sea

<table>
<thead>
<tr>
<th>TEN-T Multi-Annual Programme</th>
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<tbody>
<tr>
<td><strong>Member States involved:</strong> Sweden, France, The Netherlands, United Kingdom</td>
</tr>
</tbody>
</table>

**Implementation schedule**
- Start date: 01/01/2012
- End date: 31/12/2015

**Budget:**
- Action promoter budget: €51,003,000
- Total project cost covered by this Decision: €74,106,000
- **EU contribution:** €23,103,000
- Percentage of EU support:
  - Studies: 50%
  - Works: 20%

**Additional information:**
- European Commission, DG MOVE
- Trans-European Transport Network Executive Agency (TEN-T EA)
  - http://ec.europa.eu/tentea

**Beneficiaries:**
- Preem AB
  - www.preem.se/
- Skangass AB
  - www.skangass.com/
- Rederi AB Donsötank AB
  - www.donsotank.se/foretaget.htm
- Sirius Rederi AB
  - siriusshipping.eu
- Erik Thun AB
  - www.thun.se/
- Scheepswerf Ferus Smit
  - www.ferus-smit.nl/
- Lloyds Register EMEA
  - http://www.lr.org/
- Furetank Rederi AB
  - www.furetank.se
- Bureau Veritas
- Öresund Drydocks AB
  - www.oddbab.eu/
- SSPA Sweden AB
  - http://www.sspa.se/
- Fartygskonstruktioner AB
  - www.fkab.com/
- Sveriges Rederiservice AB

The aim of the Global Project is implementing three pilot actions for LNG, methanol and the use of scrubbers. These pilots look at meeting the sulphur legislation in 2015 in the Sulphur Emission Control Area and support the development of a competitive and environmentally sustainable shipping sector in the Baltic Sea.

The Action is composed of works and studies. The works aim at the implementation of an LNG bunker supply infrastructure for the use of LNG at the Port of Brofjorden in Sweden. The technical studies aim at the deployment of new LNG technologies in full scale Pilot Actions in vessels in the Baltic Sea and in the North Sea.

The Action will establish LNG bunkering infrastructure including the components required from the terminal to bunker vessel, and from the bunker vessel to the LNG fuelled vessels.

The deployment of new LNG technologies will result in demonstration of full scale solutions of vessels in commercial operation in the Baltic Sea and in the North Sea, as well as design recommendations, recommended best practices for operation, and suggestions for development of rules and regulations. The Action will additionally investigate financial mechanisms to support ship-owners/operators in converting their fleets to new technology.

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At present, the European market for LNG fuel for maritime transport is limited and infrastructure is almost inexistent for small-scale supply of LNG. The market requires the ports to have LNG bunkering infrastructure, while the ports expect sufficient LNG demand to build infrastructure.

To solve this situation and develop the maritime LNG sector, the present Action will create break bulk infrastructure for small-scale LNG supply in the Ports of Rotterdam and Gothenburg. These large ports combined have a critical mass to assist in the market transition to maritime LNG in northern Europe.

The facilities in Rotterdam will distribute stored LNG in the Gas Access To Europe terminal in smaller quantities. From this new break bulk facility other LNG infrastructure facilities can be supplied with LNG, like smaller terminals in other ports or fuelling infrastructure for ships. The LNG break bulk facility in Rotterdam will additionally provide a truck loading bay, which enables ships to bunker LNG in the port using trucks.

The facility in Gothenburg will be the first satellite terminal to be supplied from the Rotterdam break bulk facility. It serves as a proof of concept as well as a means to serve the Scandinavian LNG bunkering market.

The combined facilities for fuelling ships and trucks in both ports will create a synergy effect to address the importance of providing alternative fuel solutions for transport.

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The Action aims at determining the feasibility of implementing LNG bunkering facilities in the Port of Roscoff (north-west of France) and the Port of Santander (north of Spain). The studies will take into account the conformity of the infrastructures and the equipment with the standards for risk prevention (SEVESO Directive), and the eventual constraints, to be revealed by the environmental impact assessments studies and the public inquiries.

The findings of these studies will be an essential decision making tool a) for the ferry operator, to start the construction and the retrofit of LNG vessels; b) for port authorities in Roscoff and Santander that will be able to plan the design and the implementation of LNG bunkering stations; and c) for the authorities in charge of the public passenger transport in Cantabria.

The project will contribute to the development of the Atlantic Motorway of the Sea as a wider benefit action, serving all the shipowners operating in the region and looking into synergies of different transport modes.

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MONALISA 2.0 takes its point of departure in the results and experiences from
the ongoing MONALISA project (2010-EU-21109-S), co-financed by TEN-T under
the Motorways of the Sea Programme. MONALISA 2.0 will re-use the results and
experiences from the development within the aviation sector and its SESAR (Air
Traffic Management) programme, which has been strongly supported by the
European Union through the Framework Programmes and TEN-T during the past
decade.

The overall objective of MONALISA 2.0 is to strengthen efficiency, safety and
environmental performance of maritime transport, at the same time as the
administrative burden of the maritime sector will be reduced.

Nine Member States are involved in the studies, which include:
- Testing concrete applications and services which would allow short-term
  commercial deployment for the navigational part of Sea Traffic Management
- Taking joint private-public action to elaborate better standards for maritime
  route exchange through a common interface and data format
- Demonstrating concrete services using new technology to enhance maritime
  safety, making search and rescue and mass evacuations more efficient than
today and by addressing port safety
- Transferring the results of previous EU investments in air traffic management
  and other sectors into the maritime sector

MONALISA 2.0 will be beneficial to maritime transport world-wide and the
ongoing work within IALA, IMO and EU.
WINMOS is an action aiming to further develop efficient maritime transport during winter when sea ice covers large parts of the EU's northernmost waters. The Action will develop and adapt the winter navigation system for the benefit of all stakeholders involved in trade and maritime transport in the Baltic Sea area. It includes further cooperation between ice breaking authorities, resource planning, as well as upgrading and renewal of the necessary icebreaking resources.

The Action will contribute in particular to formulation of an icebreaking long term strategy in the Baltic Sea, improvements of the environmental performance and fuel saving on old engines aboard an existing Swedish icebreaker, piloting new fuel injection technique (common rail) on other icebreakers as well as upgrading the existing Icebreaking Management System, IBNet, to the contemporary needs. Software for training simulators for winter navigation will be upgraded to become more realistic.

Sufficient icebreaking resources for the next coming years will be ensured by life extension measures executed on four Swedish icebreakers built in the '70s and a new building of a Finnish state-owned icebreaker. These vessels are together a prerequisite for winter navigation in the Northernmost Baltic Sea area. Sufficient icebreaking resources will ensure efficient winter navigation for the next coming years, which is of high importance for the trade between the Northern and the more Central part of the European Union.
The closer integration of Estonia and Finland and their main ports is one of the objectives of the TWIN-PORT MoS project. TWIN-PORT is an upgrade of an existing but inefficient maritime transport link between the Ports of Helsinki and Tallinn. It is an important link with direct connections to the Nordic Triangle Rail/Road Axis (PP12) and Rail Baltic® axis: Warsaw-Kaunas-Riga-Tallinn-Helsinki (PP27).

The proposed upgrading of the transport system of the Ports of Helsinki and Tallinn links the existing European corridors and axes together, thus further reducing the bottlenecks, and facilitating development and growth for industry in the region and beyond. The Global Project will increase cohesion, cooperation and integration between the two EU Member States and the regions. Along with enhancement of cooperation and industrial growth, combating climate change by using new innovative technical solutions is another objective of the Global Project.

The need for the proposed Action is due increased cargo volumes and will lead to capacity and efficiency gains on the link.

The activities concerns:

- Development of Helsinki West Harbour
  - Port infrastructure and access developments
  - Traffic system and access improvements
  - Use of automation and new technology
- Development of traffic solutions of terminals A, B and D in Tallinn Old City Harbour
- Study regarding Tallinn-Helsinki Ro-RoTraffic Scenarios

**TEN-T Multi-Annual Programme**

**Member State involved:**
Estonia and Finland

**Implementation schedule**
- Start date: January 2012
- End date: December 2015

**Budget:**
- Action promoter: €45,040,000
- Total project cost covered by this Decision: €56,300,000
- EU contribution: €11,260,000
- Percentage of EU support: Works and studies: 20%

**Additional information:**
- European Commission, DG MOVE
- Trans-European Transport Network Executive Agency (TEN-T EA)
  [http://ec.europa.eu/tentea](http://ec.europa.eu/tentea)

**Beneficiaries:**
- Port of Tallinn
  [www.portoftallinn.com](http://www.portoftallinn.com)
- Port of Helsinki
  [www.portofhelsinki.fi](http://www.portofhelsinki.fi)

**TWIN-PORT**

**2012-EU-21011-P**

[Map of the TEN-T network showing TWIN-PORT project](http://ec.europa.eu/transport/index_en.html)
This Motorway of the Sea project looks at upgrading the transport link between northern Sweden and western Finland, including land and waterborne transport systems. It composes of designing, constructing and improving the transport links through new transport patterns, multimodal logistics and cost efficient solutions, including:

- Works: infrastructure investments made in both countries in order to improve port logistics, rail connections and port intermodality.
- Capital costs: start-up aid for a temporary ferry, including the necessary upgrading and adjustments made and planned for this temporary solution. The upgrading and adjustments will be used as examples during the analyses and concept development.
- Studies: which include an analysis of traffic management and organizational aspects of the transport link, as well as the development of a transport concept to meet the needs and provide a good foundation as input for the detailed design or procurement of a ferry.

The Action will bring benefits to the Motorways of the Sea (TEN-T Priority Project 21) on the Baltic Sea as well as have positive impacts on the cohesion of the entire Baltic Sea region. It will especially improve the environmental performance of the connection and the accessibility of this peripheral region.

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The overall objective is the adoption of the national Maritime Single Window and electronic data transmission for the fulfilment of reporting requirements for vessels entering and departing European ports in accordance with EC Directive 2010/65/EU.

The objective of the Action is to gain consensus between participating countries and develop cooperation measures to be implemented leading to the simplification and harmonisation of reporting and thereby a reduction of the administrative burden through:

- The development of a common implementation framework for EU Directive 2010/65/EU to ensure appropriate (European) interconnectivity;
- The development of national scenarios and a mechanism for gauging degree of national implementation;
- Interaction and involvement of administrations and business where necessary in accordance with this Directive;
- Development of a 2015+ strategy, possibly connecting the various national Maritime Single Windows to national logistics platforms, to be included under the Master Plan "Extended Collaboration";
- Trade facilitation.

TEN-T Multi-Annual Programme

Member State involved:
Netherlands, UK, Belgium, Bulgaria, Sweden, Greece, Spain, Portugal, Latvia, France, Italy, Slovenia, Romania, Cyprus

Implementation schedule
Start date: January 2012
End date: December 2015

Budget:
Action promoter: €18,538,000
Total project cost covered by this Decision: €37,076,000
EU contribution: €18,538,000

Percentage of EU support:
Works and studies: 50%

Additional information:
European Commission, DG MOVE
http://ec.europa.eu/transport/index_en.html
Trans-European Transport Network Executive Agency (TEN-T EA)
http://ec.europa.eu/ten-ta

Beneficiaries:
Kingdom of the Netherlands
http://www.government.nl/ministries/ienm
United Kingdom
https://www.gov.uk/government/organisations/department-for-transport
Kingdom of Belgium
http://www.flanders.be
Republic of Bulgaria
http://www.mtitc.government.bg/
Kingdom of Sweden
http://www.sijofartsverket.se/en/
Puertos del Estado
http://www.puertos.es/
Hellenic Republic
http://www.yporan.gr/
Instituto Portuario e dos Transportes Marítimos, I.P.
http://www.imarpor.pt/
Republic of Latvia
http://www.mod.gov.lv/
French Republic
http://www.developpement-durable.gouv.fr/
Italian Republic
http://www.mit.gov.it/mit/site.php
Slovenian Maritime Administration
http://www.up.gov.si/en/
Romanian Naval Authority
http://www.rna.ro/
Port Authority of Cyprus
http://www.ppa.goc.cy

The overall objective is the adoption of the national Maritime Single Window and electronic data transmission for the fulfilment of reporting requirements for vessels entering and departing European ports in accordance with EC Directive 2010/65/EU.

The objective of the Action is to gain consensus between participating countries and develop cooperation measures to be implemented leading to the simplification and harmonisation of reporting and thereby a reduction of the administrative burden through:

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- The development of national scenarios and a mechanism for gauging degree of national implementation;
- Interaction and involvement of administrations and business where necessary in accordance with this Directive;
- Development of a 2015+ strategy, possibly connecting the various national Maritime Single Windows to national logistics platforms, to be included under the Master Plan "Extended Collaboration";
- Trade facilitation.
The B2MoS Action is an innovative study which takes the form of pilot actions principally aimed at preparing and adapting business communities and port authorities’ systems to the requirements of Directive 2010/65/EU, providing interoperable electronic documents and messages (ie. electronic sea waybill) intending to boost the efficiency of door-to-door MoS supply chains, facilitating intra-Community trade and increasing European territorial cohesion.

The main objectives of the Action are:
- Preparing port management, Port Community Systems (PCS) and business stakeholders’ systems to efficiently comply with the requirements of Directive 2010/65/EU and with new National Single Windows.
- Improving interoperability of electronic messages and systems for the exchange of crucial transport documents such as the electronic manifest, sea waybill, rail consignment note and commercial invoice.
- Extending the electronic T2L initiative (electronic proof of Community status of traded goods, already elaborated in MOS4MOS), piloting its interoperability among Member States and promoting mutual recognition among Member States of the proof of EU Community Status by electronic means.
- Improving the exchange of information of public and private organisations and promoting their operational cooperation to increase the efficiency of MoS.
- Boosting the development of a TEN-T MoS network connecting North and South Europe and East and West regions in the Mediterranean area and improving European cohesion by simplifying specific administrative procedures affecting ultra-peripheral and peripheral regions and reducing barriers to intra-Community trade.
The Action relates to the recent policy developments within TEN-T. It contributes to the European policy developments and in particular to the revised TEN-T guidelines that contain a new approach within the entire transport infrastructure designed with two layers:

- the "comprehensive network", a general network reaching all regions and ensuring that all citizens and businesses have easy access to European transport;
- the "core network", covering the main transport streams between capitals, large urban nodes, major ports and border crossing points, identified with an objective methodology.

As an operative and policy supporting framework, the Action will improve long term effective and sustainable connection between the sea and other transport modes (mainly rail) by developing new port/ship/train interfaces and will contribute to kick off the analysis of how MoS will be linked to the governance model of the TEN-T priority corridors.

The expected results are:
1. Five Pilot Projects, demonstrating the effectiveness of a better structured interoperability between modes, with particular integration of MOS
2. A policy supporting activity defining the medium term prospective options for MoS in 2020
3. A deeper analysis of 4 very specific topics concerning the role of MoS in the development of the TEN-T core network corridors governance model.

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This Pilot Action covers the installation of hybrid propulsion and exhaust gas cleaning solutions on 2 RoPax vessels deployed on the maritime link Rødby-Puttgarden. The ‘Traffic Machine’, a combined freight and passenger maritime service, represents a perfect fit for the market-oriented test and real-life demonstration of the planned innovative and prototype solution. The Action’s innovative character is marked by a unique combination of propulsion and exhaust gas cleaning technologies to specific requirements both of environmental regulations and standardized ferry operations. The innovative concept, to be tested within the Action, is based on a two-stage approach: reducing the vessels’ total energy demand and allowing for the installation of the smallest possible scrubber configuration (minimizing negative characteristics like weight, stability and space/payload issues).

Energy savings will be mainly achieved by installing new sets of propellers and a hybrid drive, representing the world’s largest ever marine hybrid solution (battery capacity: 2,6 MWh). The Action provides a new standard of hybrid technology leading to pure battery operation and long-term zero emission targets. By further reducing the greenhouse-gas emissions of the ferry operation, the overall project significantly contributes to the Union’s CO2 emissions targets. Furthermore, it prepares the whole service for the upcoming sulphur regulation, presenting other maritime operators in the SECA areas a possible method of compliance without losing their competitiveness.

The project results will be made public and disseminated, through defined channels, within the maritime industry.

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The current Action is part of a Global Project, which addresses the LNG, the methanol and scrubber options with the aim to find efficient and economically viable solutions to meet the SECA regulations 2015 and to support the development of a competitive, and environmentally sustainable, shipping sector in the Baltic Sea.

This Pilot Action specifically addresses the use of scrubber technology for abatement of sulphur oxides from ships’ exhaust emissions and aims at reduced environmental impact of shipping and to achieve IMO MARPOL Annex IV SECA requirements by:

- Installation, evaluation and demonstration of a new generation, innovative lightweight scrubber technology in full scale on existing Ro-Ro vessels TransAtlantic Transpaper type and Wagenborg Schieborg, operating in the Baltic Sea and in the North Sea.
- Verification and evaluation of the specific port infrastructure and preparatory investments needed for a full scale implementation of the new generation scrubber technology.

Expected results are to find viable solutions to meet the SECA requirements by the use of new light scrubber technology. The results would greatly improve the competitiveness of the shipping sector versus other modes of transport and thus reduce the environmental impact from transports.

The Action will also investigate how a financial mechanism can be set up in order to support ship-owners/operators adopting the new technology and give recommendations to decision-makers on how to implement this mechanism. Dissemination of results and gained experience from the Action will provide guidance to the shipping community and will assist followers how to choose optimum SECA compliance strategies.

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Priority Project 21

Motorways of the Sea

Trans-European transport network. Achievement of the Priority projects

Completed in 2011
Works ongoing
Works to start between 2012 and 2013
Works to start after 2013

Cartography: DG MOVE, October 2012
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© Eurogeographics 2004 for the administrative boundaries

Completion Date
Priority sections
Priority Project 21

Motorways of the Sea

Trans-European transport network. Achievement of the Priority projects

1. 2008-EU-21010-P High Quality Rail and Intermodal Nordic Corridor Königslinie

2. 2008-EU-21015-P Motorways of the Sea projects in the Baltic Sea Area Klaipėda-Karlshamn link

3. 2008-EU-21020-P Motorways of the Sea Esbjerg - Zeebrugge

4. 2009-EU-21010-P Baltic Link Gdynia-Karlskrona

9. 2010-EU-21107-P Motorway of the Sea Rostock-Gedser

10. 2010-EU-21108-P The Baltic Sea Hub and Spokes Project

13. 2011-EU-21001-M Adriatic Motorways of the Sea (ADRIAMOS)

14. North Sea network 2011-EU-21002-P

On Shore Power Supply - an integrated

18. 2011-EU-21009-M

IBUK – intermodal corridor

19. 2011-EU-21010-M

Green Bridge on Nordic Corridor