



European  
Commission

# Motorways of the Sea

Detailed Implementation Plan  
of the European Coordinator

**Brian Simpson**

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## Foreword,



After two years of intense preparation, I am proud to present the Detailed Implementation Plan (DIP) which is my second work programme outlining the vision for future of Motorways of the Sea (MoS) framework as the maritime dimension of the Trans-European Transport Network.

Improving transport connectivity within the EU and with the neighbouring countries is a major EU transport policy goal. It cannot be achieved without a well-functioning, properly connected and robust maritime sector.

The Motorways of the Sea programme is strongly focused on short sea routes, which in 2015 constituted nearly 59% of all maritime transport of goods to and from European ports. Only with vibrant and regular Motorways of the Sea connections can we think of guaranteeing the competitiveness of the overall EU transport and logistics chains. Nevertheless, equal importance should also be paid to investments in ports, associated maritime infrastructure, hinterland connections and wider benefit actions.

My second work programme follows the three development pillars that I always considered as key priorities for short sea shipping and ports:

1. Environment
2. Integration of maritime transport in the logistics chain
3. Safety, traffic management and the human element.

My Detailed Implementation Plan includes the most updated figures for each development pillar with regard to projects currently financed under the Motorways of the Sea, including references to specific but non-exhaustive examples.

It also proposes a set of recommendations suggesting the main directions into which the future funding for maritime transport should be channelled. Under the first pillar, the DIP strongly advocates for further support to the industry in their efforts to lower pollution and decarbonise the maritime transport sector.

The second pillar stresses the importance of channelling funds to address the modal shift, last-mile connections, and for better digitalisation and interoperability between various players involved in ports/ships and logistics operations.

Finally, the third and the most horizontal development pillar points the need for funding to go to issues that concern the whole industry, such as for further training of maritime professionals to respond to a fast changing environment and emerging challenges (e.g. cybersecurity, alternative fuels, and emergency response). It also calls for the further development and implementation of the

"Made in Europe" Sea Traffic Management System. A tool inspired by the SESAR program in aviation, which should, in my opinion, be further implemented to increase the overall coordination and interoperability of many stakeholders involved in maritime operations.

I believe that this Implementation Plan, and its accompanying study, should become a reference point for future CEF spending priorities with regard to the maritime dimension of the TEN-T network: Motorways of the Sea. Without a well-functioning Motorways of the Sea network, we cannot achieve an integrated, fully-fledged, and effective TEN-T system in Europe.

I invite all readers to work together with the European Commission towards a Motorways of the Sea programme that effectively contributes to a more competitive and sustainable transport system for Europe and for supporting trade globally.



Brian Simpson, OBE  
The European Coordinator for Motorways of the Sea.

**Methodology**

*This report represents the opinion of the European Coordinator and does not prejudice the official position of the European Commission.*

## I. Introduction

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There is no doubt about the importance of shipping as the transportation backbone supporting world trade. In Europe, the shipping sector accounts for 40% of global shipping and European ships trade on all oceans, serving markets all over the world. In addition, shipping is a central part of the intra-European transport system with ports, ferries, barges and various other operators moving goods and people by sea. Sea transport contributes to decongestion on land-based networks, eases pressure on logistics chains and provides clear environmental and climate benefits. With its geography, Europe's seas span the Arctic winter areas as well as the warmer climate areas, leading to an unparalleled experience with shipping operations in different conditions. Continuing to build on Europe's maritime dimension will strengthen the EU's global competitiveness, increase the number of job opportunities and promote leadership and international excellence in maritime R&D.

Without forgetting the importance of global sea trade and deep sea routes, Europe needs to look closer at its short sea shipping (SSS) sector in order to achieve these objectives. In 2015 SSS, i.e. the movement of passengers and cargo by sea over short distances, moved 1.8 billion tons of cargo in Europe and constituted approximately 59% of all maritime transport of goods to and from European ports<sup>1</sup>. Strengthening SSS and ensuring its full integration in the internal market is paramount not only to enhance the mobility of goods and passengers, but also to guarantee the competitiveness and sustainability of the overall EU transport and logistics chain.

The Motorways of the Sea Funding Programme, with its strong focus on short sea routes, maritime links and infrastructures, is best placed to support the SSS industry and ports, with the objective to strengthen the internal market as well as to support links with neighbouring countries. MoS is therefore considered a maritime pillar of the Connecting Europe Facility

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<sup>1</sup> Data from Eurostat, 2015  
[http://ec.europa.eu/eurostat/statistics-explained/index.php/Maritime\\_transport\\_statistics\\_-\\_short\\_sea\\_shipping\\_of\\_goods](http://ec.europa.eu/eurostat/statistics-explained/index.php/Maritime_transport_statistics_-_short_sea_shipping_of_goods)

and intends to connect the prioritised transport corridors in the EU as well as support industry in capturing the latest technological developments in the maritime sector.

With this Detailed Implementation Plan (DIP), MoS Coordinator Brian Simpson seeks to build on the successes of the MoS Programme so far to ensure a sustainable, integrated, safe and competitive SSS sector in the EU. Following extensive consultation with stakeholders, EU institutions, and Member States, and in depth data analysis, the DIP presents a number of recommendations under the three pillars (Environment, Integration of maritime transport in the logistics chain, and Safety, Traffic Management and Human Element) to shape the MoS programme of tomorrow<sup>2U</sup>.

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Unlike the nine Work Plans for the Core Network Corridors, this MoS DIP has not been formally approved by the Member States, as it is not required by the TEN-T Regulation 1315/2013. .

## II. Background – MoS today

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### 1 LEGAL BASIS FOR MOS

In the past, the Motorways of the Sea (MoS) concept was implemented through various funding mechanisms, of which TEN-T<sup>3</sup> and Marco Polo II programmes<sup>4</sup> were the most prominent.

As from 2013, the MoS funding programme is legally described in Article 21 of the TEN-T Regulation 1315/2013, where it is stated that MoS, inter alia:

*(1) ...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 [...],*

*(3) Projects of common interest [...] 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 [...].*

### 2 DEFINING THE MOS FUNDING PROGRAMME

Motorways of the Sea support the maritime dimension of the Trans-European Transport Network under the Connecting Europe Facility (CEF). Concretely, it supports the wider maritime industry (ports, shipping operators, public administrations, industry stakeholders) in financing and implementing projects aimed at developing a viable EU maritime sector, including by improving connectivity between core and comprehensive ports of the TEN-T network and land base transport corridors defined in the framework of the Core Network Corridors<sup>5</sup>, optimising cargo flow and improving the environmental performance of the sector.

Since 2014 under CEF 46 MoS projects have been funded, including one in the recent “blending call”

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<sup>3</sup> Decision No 661/2010/EU and Regulation (EC) No 680/2007

<sup>4</sup> Regulation (EC) 1692/2006

<sup>5</sup> Regulation (EU) No 1315/2013 on Union Guidelines for the development of the trans-European transport network.

The objectives of the Motorways of the Sea Funding Programme are defined by TEN-T Regulation and are aimed to:

- 1) Strengthen the European maritime transport network through maritime links projects, and
- 2) Strengthen the European maritime sector as a whole through wider benefit projects.

The criteria for projects to qualify for MoS funding are set out in the TEN-T Regulation, and have been clarified over the years in the different calls for proposals for MoS funding. The Coordinator's consolidated interpretation of the criteria is provided below.

Criteria to qualify as a maritime link project:

- The project should involve at least two EU ports from two different Member States: two core ports or one core and one comprehensive port. The project could also involve a non-EU third country port under certain conditions.
- The project should also involve a maritime operator<sup>6</sup>
- There should be a balance between the investments in ports and the investments on vessels.

Criteria to qualify as a wider benefit project:

- These are projects that address the industry needs widely (e.g. coherent investments in a group of ports for LNG filling stations or coherent set of investments in port reception facilities in a region, or coherent set of investments of ports and related maritime and logistic actors on integrated and interoperable ICT platforms)
- The infrastructure or technological solutions of wider benefit projects should be able to serve all possible maritime operators or other actors of the maritime supply chain<sup>7</sup>.
- The project should involve activities in at least two EU Member States
- The project does not have to be linked to specific port categories (i.e. it can include comprehensive ports or be focused only on core ports and their integration with Core Network Corridors).

Criteria to qualify as pilot actions

- These are projects with a clear innovative character, whose objective is to “introduce new and innovative concepts and technologies (excluding R&D) in the pre-implementation phase and test them in real operational conditions”<sup>8</sup>.

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<sup>6</sup> Serving a short sea shipping route between the two ports involved in the project

<sup>7</sup> Including i.a. deep sea shipping routes, if applicable

<sup>8</sup> Source: INEA

- The EU co-funds pilot actions at a rate of 50% of the total project budget.

All other projects (known as “implementation” or “works” projects) listed under "links" and "wider benefits" projects will be co-funded at a rate of 30% of the total project budget. The co-funding rates may be increased up to 85% for eligible cohesion countries.

To qualify for funding under the MoS/CEF, every project needs to involve activities in at least two European Member States, and the competent authorities of those Member States need to sign off on the project proposal.

#### Participation of third countries

Third countries (neighbouring countries) can also take part in MoS projects but their participation is limited to certain types of projects (studies<sup>9</sup> and studies with a pilot action) and cannot include co-funding for non-EU transport network infrastructure

For each call for proposals under the MoS/CEF, the European Commission will establish specific priority areas to be funded. These priorities will fall under the projected key priorities set out in the Motorways of the Sea European Coordinator, Brian Simpson’s, Detailed Implementation Plan<sup>10</sup>. These priorities are:

- 1) Environment (pillar 1)**
- 2) Integration of maritime in the logistics chain (pillar 2)**
- 3) Safety and the Human Element (pillar 3)**

In this way, the MoS/CEF aims to complete the Trans-European Transport Network by guaranteeing a fully functioning system for European Short Sea Shipping, connecting the maritime dimension to the European Core Network Corridors, connecting peripheral and outermost regions, and driving innovation in the maritime sector.

### **3 HOW DOES THE MARITIME DIMENSION OF THE TEN-T LOOK TODAY?**

Maritime transport plays an important role supporting trade of goods and the transport of passengers between the EU Member States (short sea shipping).

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<sup>9</sup> As of 2016, studies without a pilot action were not considered eligible

<sup>10</sup> The first version of the DIP, which includes more detailed results of the stakeholder consultation process, can be found here: [https://ec.europa.eu/inea/sites/inea/files/dip\\_november\\_2016.pdf](https://ec.europa.eu/inea/sites/inea/files/dip_november_2016.pdf)

In addition to a significant number of unscheduled (short sea shipping) transport activities taking place within the EU, more than 800 regular ro-ro and container services are the heartbeat of European maritime transport. They call in more than 400 different EU ports and connect them with hundreds of ports worldwide. They comprise a large variety of different links from short-distance ro-ro ferries crossing straits to round-the-world container liner services between the Far East, Europe and the Americas.

These maritime routes carry billions of tonnes each year. However, in order to function properly, they need efficient ports and hinterland connections. Moreover, this maritime dimension must be fully integrated into overall logistics chains as the ports are most often neither the source nor the ultimate destination of freight flows.

The ports in the EU-28 handle close to four billion tonnes of cargo per year<sup>11</sup>. According to estimates, around three billion tonnes are hinterland traffic, i.e. traffic that needs pre-/post-carriage by truck, rail or barge. Hence, the connections of terminals and ports with the hinterland infrastructure are vital for the success of maritime transport.

Despite the importance of maritime transport in Europe, the TEN-T Core Network Corridors contain only very few MoS links. The corridors are conceptualised as land-based corridors that merely start or end in ports. However, a look at the existing regular ro-ro and container liner services shows that the maritime connections are manifold, connecting both ports within individual CNCs, between different CNCs and – of course – CNC ports with non-CNC ports in Europe and in the rest of the world. The diverse geography of these connections is illustrated for the different European Coastal areas below. Additional to the ro-ro and container services, there are a significant amount of European trade on tramp service or time chartered and this should be considered when looking at maritime dimensions of the TEN-T.

## 4 BALTIC SEA

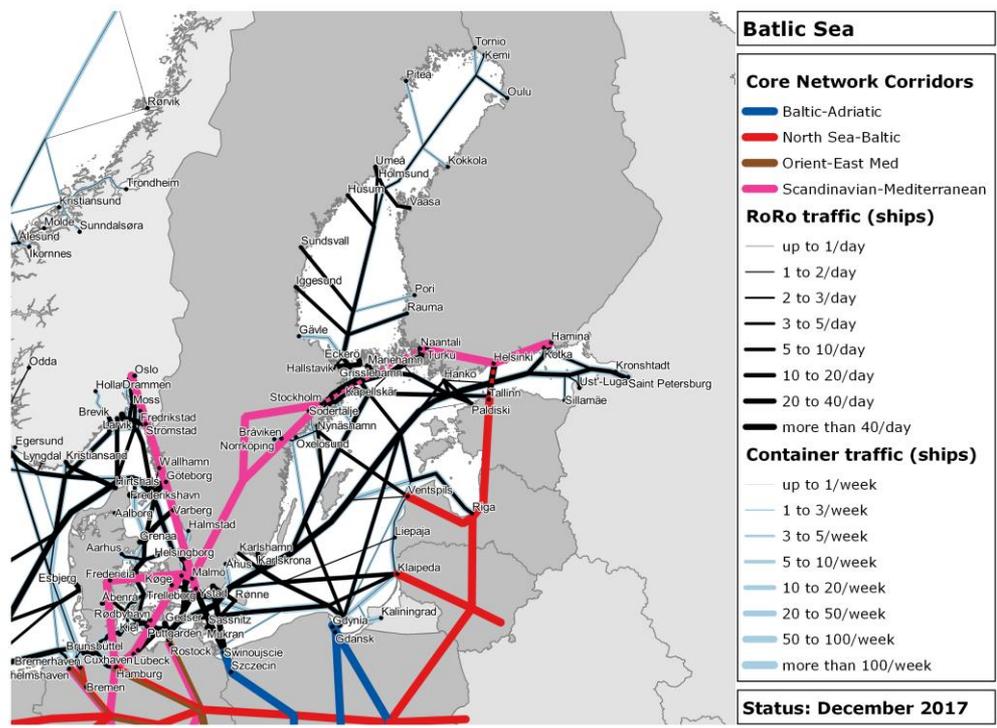
In the Baltic Sea, there is a high density of regular ro-ro and container services connecting the CNC ports with each other, but also with comprehensive network ports, including ports in the Northern periphery. There are 20 CNC ports in the area, 15 of which are connected to at least ten ports offering short sea services. Next to existing connections within the Baltic Sea, this mostly includes connections with North Range ports<sup>12</sup>.

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<sup>11</sup> Eurostat, Maritime Transport of Goods

[http://ec.europa.eu/eurostat/statistics-explained/index.php/File:Gross\\_weight\\_of\\_seaborne\\_goods\\_handled\\_in\\_EU\\_28\\_main\\_ports\\_2016Q2.png](http://ec.europa.eu/eurostat/statistics-explained/index.php/File:Gross_weight_of_seaborne_goods_handled_in_EU_28_main_ports_2016Q2.png)

<sup>12</sup> Including all major ports along the French, Belgian, Dutch and German coast from Le Havre to Hamburg



Note: Regular international services only;

Source: ISL based on MDS Transmodal and AIS ship movement data

There are two types of **ro-ro connections**: the short-distance links crossing the Baltic Sea, and the long-distance, often multi-stop services parallel to the coasts. The most important international links in terms of cargo volumes are between Germany/Poland on the one hand and Denmark/Sweden on the other hand, but there are also high-frequency ferries connecting Sweden and Denmark as well as Finland with Sweden and with Estonia. The latter two links are part of the Scandinavian-Mediterranean and the North Sea-Baltic corridor, respectively. The long-distance traffic concentrates on the route between the Gulf of Finland and the Southern Baltic (and on to North Sea). The Swedish west coast has several links to the North Sea.

**Container traffic** concerns mostly traffic between North Range hub ports and Baltic Sea ports, most of it is passing through the Kiel Canal. This includes particularly feeder traffic from deep sea services calling the North Range, but also some short sea trade, i.e. trade between the North Range ports' hinterland and countries in the Baltic Sea.

In addition, there are some deep sea liner services calling directly in Baltic Sea ports – including Asia services with container vessels of more than 20,000 TEU. The volume of intra-Baltic container trade (i.e. excluding feeder traffic) is rather limited. Due to high handling

costs for containers in the ports, this traffic is only economically viable on longer distances (e.g. between Germany and Finland) and where it is combined with rail or barge transport in the hinterland.

In accordance with MARPOL Annex VI and the EU Sulphur Directive, as of 1st January 2015, seagoing vessels sailing in the Baltic Sea (Emission Control Area) must use fuels with maximum 0.10% sulphur content (SECA). From today's perspective, the ship operators and ports have managed the challenges that arose from the SECA introduction resulting in positive environmental consequences in terms of sulphur emissions.

A further essential step to solve the environmental problems in the Baltic Sea is the designation as a NOx Emission Control Area, as adopted by the International Maritime Organization (IMO) in 2016 - following an application by the Baltic Sea States of Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, the Russian Federation and Sweden. The IMO NOx Tier III requirements will apply to ships built after 1 January 2021 and require a reduction of NOx emissions by 80% compared to the present emission level.

In addition, in July 2011, the Baltic Sea was designated as a special area under MARPOL Annex IV (sewage) with new discharge requirements for passenger ships while in a special area. The discharge of sewage from passenger ships within the special area will generally be prohibited under the new regulations, except when the ship has in operation an approved and certified sewage treatment plant on board. The Special area requirements will become effective in 2019 (for new ships) and 2021 (for existing ships).

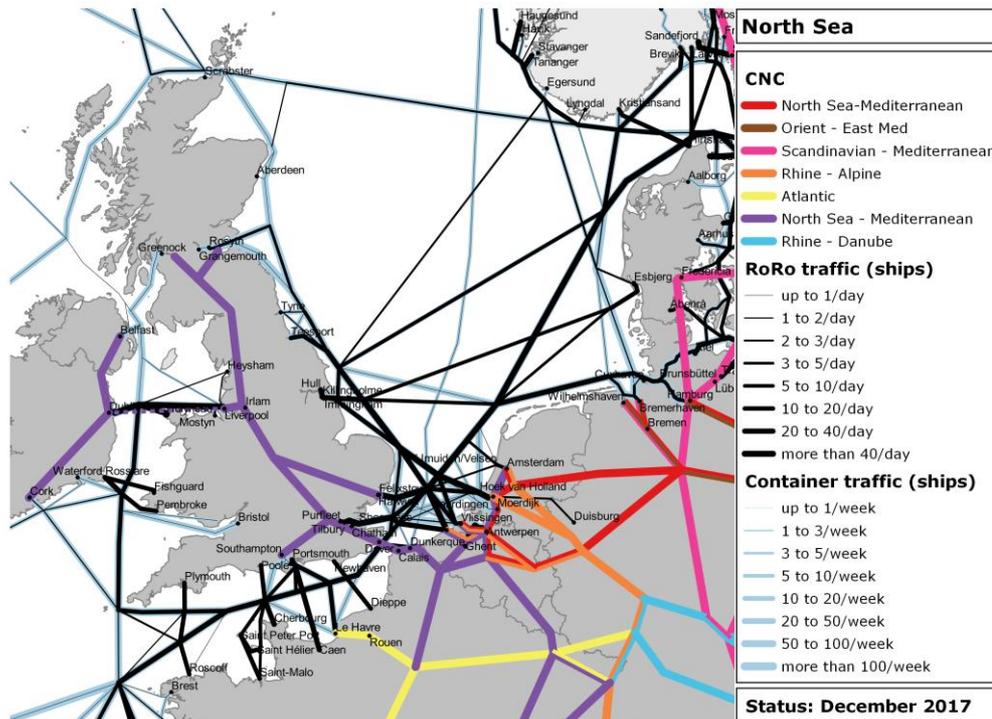
A specific characteristic for the Baltic Sea is given by the icebreaking season and the deriving need for winter navigation and icebreaking services as an integrated part of the region's maritime infrastructure for providing an efficient all-the-year navigation.

## 5 NORTH SEA

The North Sea area is one of the busiest port ranges in the world. All in all, there are 26 CNC ports in the area with a wide network of connected ports within and outside the EU. With Rotterdam, Antwerp, Bremerhaven and Hamburg, it includes the four biggest container ports in the EU with a combined total handling volume of about 37 million TEU in 2016. Each of these ports is connected with more than 100 ports in Europe while another 18 CNC ports are connected with at least ten other ports. In addition, there is a large amount of ro-ro traffic, particularly across the Channel as well as between Ireland and Great Britain.

As in the Baltic Sea, **ro-ro services** in the North Sea comprise long-distance routes along the coastlines and medium- to short-distance routes crossing the North Sea. While Calais-Dover

is by far the most important link in terms of total cargo traffic and the shortest route between the UK and the continent, there are numerous other links across the Channel. Moreover, there are also several ro-ro services between Great Britain and Ireland as well as between Great Britain and Norway/Sweden and between the North Range Ports and the Scandinavian countries.



Note: Regular international services only  
 Source: ISL based on MDS Transmodal and AIS ship movement data

The major **container route** – one of the most important ones in the world – stretches from Hamburg along the German, Dutch and Belgian North Sea coast and through the Channel to the open sea. The North Range ports offer regular services to ports all over the world. Smaller ports are connected to the network via feeder services, but also through specialised deep sea services, most notably connecting Europe to Africa.

Parallel to the Baltic Sea, also the North Sea as another ‘SOx Emission Control Area’, has introduced the 0.10 % sulphur content as in marine fuel from 1 January 2015, with positive developments for the environmental performance of the maritime sector. Moreover, in parallel to the Baltic Sea, the North Sea will also apply the NOx Emission Control Area

(NECA) requirement from January 1, 2021 in order to reduce nitrogen oxides emissions according to the IMO NOx Tier III requirements.

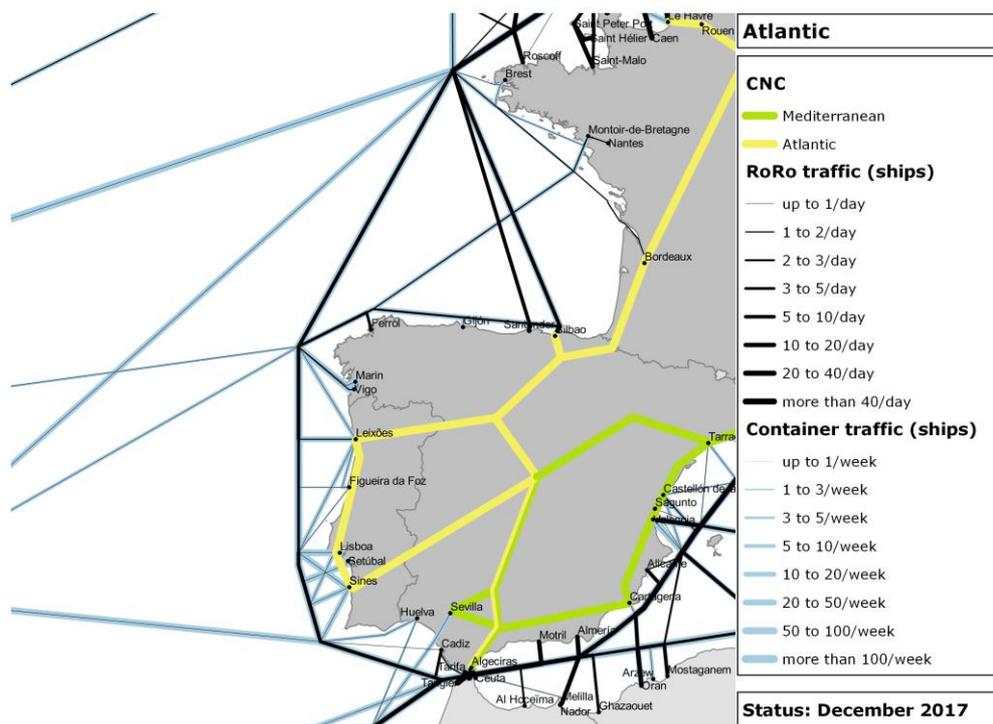
Impacts on the North Sea are also expected from the Brexit which have been officially requested in March 2017. However, consequences for the maritime sector on both sides, i.e. for the shipping and port sectors in the EU and in the UK are still not finally predictable as the negotiations are expected to last two years and results are still open. However, strong impacts are expected for Ireland as it becomes a peripheral region losing any direct land borders to EU territory.

## 6 ATLANTIC COAST

The Atlantic coast stands out among the European coastal areas because there are no real short-distance routes. Opposite to the European Atlantic coast is the North American Atlantic coast at a distance of several thousand nautical miles. There are only six CNC ports on the European Atlantic Coast, four of which have connections with ten or more shortsea ports. Contrary to the other port ranges, connections with overseas ports (including the Azores and the Canary Islands) are just as numerous.

**Ro-ro services** mostly connect the Atlantic coast ports among each other (e.g. France-Portugal) and with British ports.

While ro-ro traffic is hence less developed here than in the other European coastal areas, the Atlantic coast is strategically situated for **container traffic**. Three major intercontinental cross here: Americas to Europe, North Europe to Asia and Europe to Africa. Accordingly, ports along the Atlantic coast handle a large variety of deep sea services. Besides their role in intercontinental traffic, they are also the main correspondence ports on the European mainland for serving the Portuguese Acores and Madeira as well as the Spanish Canary Islands.



Note: Regular international services only

Source: ISL based on MDS Transmodal and AIS ship movement data

The Atlantic ports play a particularly important role in connecting outermost and peripheral regions (next to the aforementioned archipelagos Azores and Canary Islands also Ceuta and Melilla).

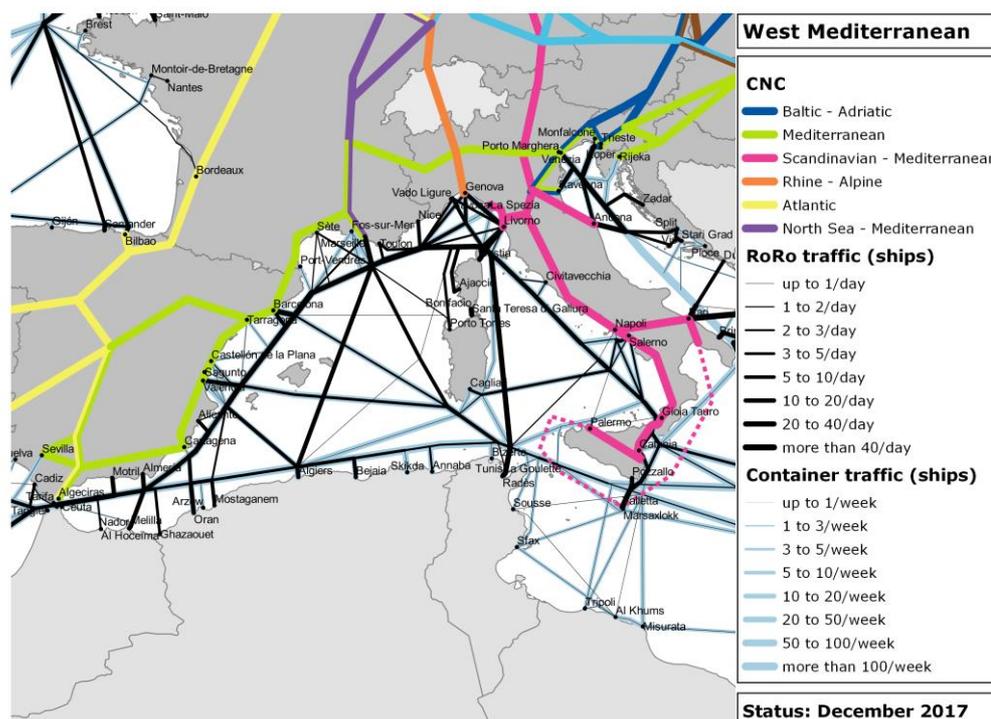
## 7 WESTERN MEDITERRANEAN

The 23 CNC ports in the Western Mediterranean are connecting the Southern part of the European continent with major intercontinental trade routes, in particular with Asia. Nineteen ports have connections with more than ten other European ports. Their shortsea traffic is mostly North-South bound, i.e. connecting the European continent with North Africa, or feeder traffic.

**Ro-ro traffic** in the western Mediterranean is hence not limited to traffic between European ports but quite the contrary: the largest cargo traffic volumes are transported between the South of Spain and Morocco. Further to the East, ports in France and Italy also connect to North Africa through regular ro-ro lines. Still, there are also various intra-European services

connecting Spain, France and Italy with each other<sup>13</sup> – including direct connections of Corsica and Sardinia with neighbouring countries. Finally, Malta relies mostly on ro-ro connections with Southern European countries for intra-European trade.

As regards **container traffic**, there are several important hub ports in the Western Mediterranean that are directly connected to major Asia and Americas services. The smaller ports are mostly served by feeder vessels to and from these ports.



Note: Regular international services only

Source: ISL based on MDS Transmodal and AIS ship movement data

In the past years, the political unrest in the Northern African countries and the related economic instability has put a strain on North-South ro-ro traffic across the Mediterranean. With regard to the future, however, trade and consequently maritime transport with neighbouring African countries is assumed to have strong development potentials. It is therefore important to promote a strategy seeking to increase connectivity between the Northern Mediterranean and the Southern Mediterranean.

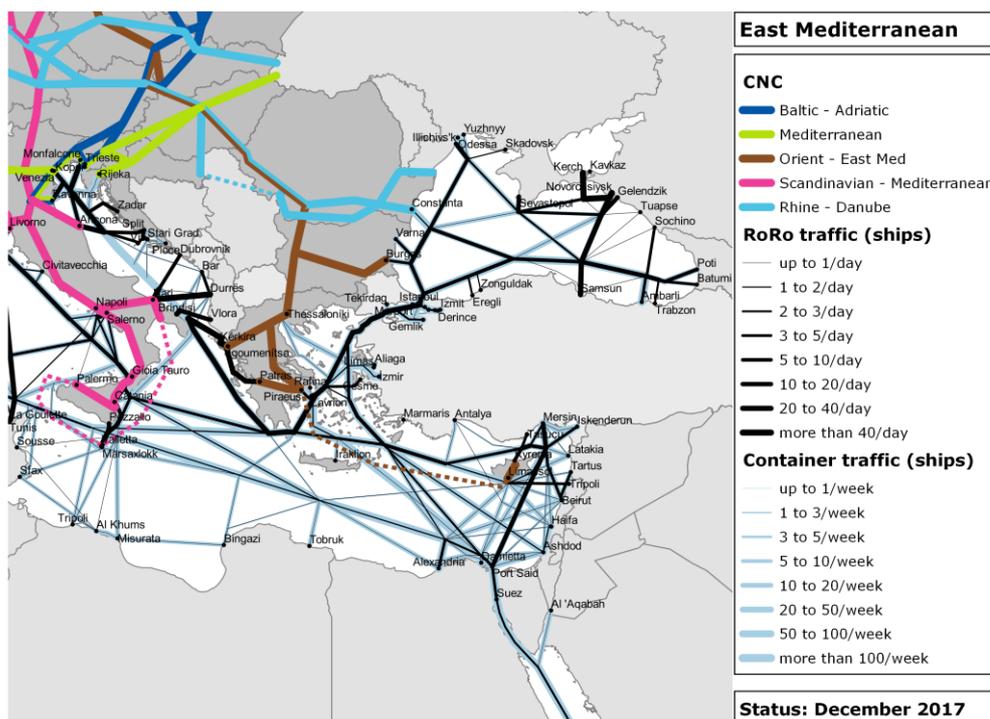
<sup>13</sup> Among these services, the direct connection between Civitavecchia, Porto Torres and Barcelona was recently co-financed by the CEF Blending Call.

## 8 EASTERN MEDITERRANEAN AND BLACK SEA

The ports in the Eastern Mediterranean and Black Sea area are the European Union’s door to the neighbouring countries in the South East. The regular connections are predominantly shortsea connections. Notably, five out of nine CNC ports have no direct deep sea services at all.

In the Eastern Mediterranean, there are three major **ro-ro routes**: Adriatic Sea to Greece, Greece to Turkey and connections in the Near East (Egypt, Turkey and Cyprus). Ports in the Black Sea are connected among each other through various ro-ro services.

With regard to **container traffic**, many ports benefit from being close to the main Europe-Asia trade route through the Suez Canal. Some of them have established themselves as hub ports for transshipment. Direct Asia services now also call in the Black Sea where Constanta has developed into a regional hub port.



Note: Regular international services only  
 Source: ISL based on MDS Transmodal and AIS ship movement data

The integration of Cyprus into the EU-wide shortsea network remains an issue. Due to the long distance to the European mainland, there is only one regular ro-ro connection with the

EU, while ro-ro traffic with Turkey and other neighbouring countries in the Eastern Mediterranean is quite extensive.

The integration of Limassol in the deep sea and shortsea container network is hence of utmost importance for Cypriot trade.

## 9 THE THREE PILLARS OF MOS

MoS has been instrumental in helping the maritime industry improve its environmental and safety performance, while at the same time ensuring that freight and people can move efficiently.

This objective is reflected in the three key pillars identified by Coordinator Brian Simpson<sup>14</sup>, which are presented below together with a selection of selected projects.

A full list of projects by pillar can found in Annex I.

### PILLAR 1: Environment

The 2010 White Paper for Transport enshrined a vision for a competitive and sustainable transport system, with the ambitious objectives of growing mobility and supporting mobility while significantly reducing emissions from transport.

MoS has embraced this vision, and has so far supported projects contributing to:

- Emission reduction: helping ship-owners to comply with strict environmental legislation by supporting the use of alternative fuels (such as LNG and methanol), and Exhaust Gas Cleaning Systems (EGCS) installations
- Innovation: supporting first-movers in green technologies, such as ship electrification
- Green infrastructure development: supporting ports to respond to the demands of green shipping, by providing bunkering facilities for alternative fuels, onshore charging stations (shore-side electricity) and adequate port reception facilities for the reception and treatment of ship generated waste and cargo residues.

### **TEN-T and CEF contribution:**

**19 projects** were financed under the TEN-T programme that mainly addressed improving the environmental performance of maritime transportation. These have generated just **EUR 463.7 million of investments** of which the EU has contributed with **EUR 109.8 million**.

Since 2014, **25 additional environment/sustainable shipping projects** have been financed

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<sup>14</sup> The three pillars define the MoS Coordinator's priorities under the Multi-Annual Financial Framework 2014-2020

under the current CEF, adding an investment of **EUR 503.6 million** (of which the EU total contribution has been EUR 185.1 million). These projects were mainly LNG or EGCS-related, reflecting the ECA-compliance preparations in the Baltic and North Sea/English Channel areas. Similar projects were also implemented in other regions of Europe; including in the Mediterranean, i.a. to comply with the requirements under the Directive on Alternative Fuel Infrastructure. Other projects covered areas such as alternative fuels (methanol), electric vessels, on-shore power supply, port reception facilities, and SECA compliance monitoring.

### Examples of success stories

**The Blue Baltics** project will deploy and upgrade existing LNG infrastructure (refuelling stations and LNG terminal) in ports of Estonia, Sweden and Estonia with the aim to develop a network of LNG bunkering facilities in the Baltic Sea that would consolidate the use of LNG as a marine fuel.

When talking about innovative solutions for sustainable shipping, the project **“Methanol: the marine fuel of the future”**, cannot be overlooked. The project tested the performance of methanol as a marine fuel by retrofitting Ro-Pax vessel Stena Germanica to run on methanol, and built dedicated bunkering facilities. To this day, the Stena Germanica is the only methanol-powered ferry operating in Europe.

**The Zero Emissions Ferries** project will test electricity in two passenger vessels in the Sound between Sweden and Denmark with the aim to prove that maritime transportation without emissions is feasible. The results are expected to build up experience for a larger scale deployment of this type of vessel in the future.

With the 2020 global sulphur cap fast approaching, **the ELEMED** project is one example of MoS supporting first movers in the Mediterranean and Adriatic Sea (Greece, Cyprus, and Slovenia). This project assesses the viability of electricity-based propulsions systems for vessels and will test the deployment of cold ironing installations.

## **PILLAR 2: Integration of maritime transport in the logistics chain**

Transport is crucial to human activities, and maritime transport is proven to be an efficient and reliable enabler for the EU economy.

However, green and efficient ships and ports solve nothing if freight and passengers cannot easily access the internal market. Efficient logistics and passenger transport services are

crucial for the competitiveness of Europe as well as strongly contributing to a better environmental performance of the sector.

MoS has strongly supported actions promoting the integration of maritime transport in the logistics chain. These include:

- Upgrades of maritime links: strengthening links between core and comprehensive ports by financing i.e. upgrades in port capacity, and improvement to terminal access
- Optimisation of maritime transport operations: enhancing sea-shore interactions via innovative ICT, data sharing and Port Collaborative Decision Making (CDM), and improving physical operations through better port access, handling facilities and automation, and new terminal management systems.
- Improvement of connections to the hinterland: supporting port projects looking to enhance connectivity with the network (for example through railway terminals), and in particular connectivity with CNCs

#### **TEN-T and CEF contribution**

**21 projects** were financed under TEN-T (2008-2013) related to the integration of the maritime transport in the logistics chains. These have generated just over **EUR 737.3 million of investments** of which the EU has contributed EUR 146.5 million in the TEN-T.

Under the CEF (i.e. since 2014), **16 additional projects** have been funded in the field of the integration of the maritime transport in the logistics chains, for a total investment of **EUR 421.1 million** (of which the EU total contribution has been EUR 142.3 million).

#### **Examples of success stories**

**The Fresh Food Corridors** project seeks to achieve safe and efficient transport of fresh food in the Mediterranean area, as well as to improve intermodal logistics connections between the Mediterranean and Northern Europe. The participation of Israel in this project is a great example of how MoS can help extend connection to third countries.

The maritime link element of MoS is well illustrated by **the BRIDGE** project, which aims at upgrading the MoS link between Dover and Calais by investing in adaptation and enhancements of the ports infrastructure and in traffic management improvements. This ensures smooth movement of passengers and cargo along the TEN-T North Mediterranean Core Network Corridor.

**The Twin-Port** project is also an example of upgrading one of the busiest ferry links in Europe, Tallinn-Helsinki that connects two different CNC (Scan-Med and North Sea-Baltic).

The project has received funding in two phases from both TEN-T and CEF programs and it comprises a massive program of port investments in both sides in order to upgrade the capacity and efficiency of traffic flows.

### **PILLAR 3: Safety, Traffic Management and the Human Element**

Efficient and sustainable maritime transport is synonymous with safe transport. Safety is a precondition for shipping and ports to operate. While the industry has already reached high safety standards through relentless work at IMO and EU level, MoS has assumed an important role in the promotion and further enhancement of safe shipping. In this context, the MoS Coordinator strongly believes that safety derives from investments in people (the human element), as well as in modern ICT for better sea traffic management.

MoS has supported a number of actions in this field, these include:

- Training of maritime personnel: i.e. as regards safety procedures
- Developing new concepts for traffic management: supporting actions developing new ICT for voyage management, monitoring of traffic flows and sharing of maritime information
- Deepening knowledge on European seas and sea beds: financing the completion of hydrographic surveys

#### **TEN-T and MoS contribution**

Under TEN-T, **4 projects** have been financed related to safety, traffic management and the human element, generating a total investment of over **EUR 52.1 million** (of which the EU has contributed over EUR 25.6 million).

In addition, **5 projects** were financed under CEF so far, for a total investment of **EUR 128.6 million** (EUR 52.7 million of EU contributions). It is important to note that many other environmental and logistics projects that belong to Pillar 1 and 2 also included activities contributing to the enhancement of maritime safety and the further development of traffic management and the human element.

#### **Examples of success stories**

**The Sea Traffic Management (STM) Validation Project** is a great example of how MoS can support traffic management and logistics integration. STM builds on two previous projects (Monalisa and Monalisa 2.0, supported under TEN-T) to improve information sharing and communication through the testing of Voyage Management, Flow Management and Port Collaborative Decision Making in the Nordic region and Mediterranean Sea, thereby facilitating the flow of goods and passengers. STM greatly contributes to navigational safety and better accident prevention and responsiveness. Overall, STM creates socio-economic

benefits as well as a solid business cases for the industry, e.g. reduction of administrative burden, bunker/fuel savings, decreased greenhouse gas emissions from shipping, improved utilisation of resources, minimised risks, and improved maritime safety.

Safety of navigation in the Baltic Sea is also addressed by the **FAMOS Freja** and **FAMOS Odin** projects, which aim at completing the hydrographic surveys of the Baltic area with the use of the latest technological and scientific standards. The project will i.e. deliver updated Electronic Navigation Charts and gather useful data for a number of current and future applications, thereby contributing to the safety, economic and environmental efficiency of maritime transport in the Baltic Sea.

ICT solutions for maritime safety and the human element are also the focus of **PICASSO**, a MoS project involving Cyprus, Greece, Spain, Italy, Malta, Portugal, Sweden and the UK. The project addresses on shore and on board safety and security (including ship to shore data sharing), emergency simulations, and training for crew and emergency staff.

### CEF program: the maritime dimension

Finally, it is worth mentioning that in addition to MoS funding, the CEF finances a number of projects that are relevant for the development of the port sector in the European Union.

Maritime transport can also be funded by portfolios of CEF projects that relate to innovation, multi-modal transport, urban nodes, and in some few cases via the rail priority when rail connections are extended to port terminals.

CEF funding related to ports (including the first phase of the Blending Call) covered, in total, 32 actions with a total CEF contribution of EUR 546.1 million.

CEF Innovation funding relevant to maritime transport (including the first phase of the Blending Call) covered 10 actions with a total CEF contribution of 56.3 million.

In this context, there are a number of port projects listed in the nine CNC work plans that are relevant to the MoS' objectives.

A list of the relevant "port projects" has therefore been compiled and includes 407 projects that have been selected from the Core Network Corridors project lists<sup>15</sup>. They can be found in the respective websites<sup>16</sup> of each European Coordinator<sup>17</sup>.

Most of these projects can be easily included in a MoS link project while many others could be part of a MoS wider benefit action.

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<sup>15</sup> Which includes more than 2300 projects

<sup>16</sup> <https://ec.europa.eu/transport/themes/infrastructure>

<sup>17</sup> The complete list will be added in the final version of this document, attached as annex in the planned study on "Ports and Shipping Operations)

### III. MoS tomorrow

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When defining development priorities, it is important to remember that the Motorways of the Sea/CEF programme intends to support actions with a forward-looking dimension, for instance backing necessary investments for green shipping aimed at meeting – and going beyond - the new and more stringent international standards. For example, the retrofitting of EGCS on ships operating in the SECA area is in principle no longer supported<sup>18</sup>, while EGCS investment is still eligible under MoS/CEF for ships operating in areas outside the SECA (for example in the Mediterranean Sea), in preparation for the 0.5% global sulphur content limit entering into force in 2020.

With this in mind, it is already possible to bring into focus a number of development priorities for compliance with forthcoming targets (e.g. completion of TEN-T networks, upgrading port reception facilities to meet new international and EU requirements for the delivery of waste from ships, implementation of the EU Monitoring, Reporting and Verification (MRV) of carbon dioxide emissions from maritime transport and the IMO data collection system for fuel consumption of ships, implementation of the Ballast Water Management Convention etc.) but also to build the awareness that the coming years will bring on new challenges and opportunities in a number of areas.

Digitilisation will also be a defining priority for MoS. There is a strong need for improved efficiency in maritime transport, from berth to berth, between ships, between ships and ports, within port areas as well as between ports. Instant exchange of information and innovative ICT solutions are crucial to decrease administrative burden, increase situational awareness as a catalyst for improved safety of navigation, and optimise capacity utilisation and just-in-time operations, which in turn facilitates freight flows while also improving the environmental performance of the sector. Digitalisation and automation in cargo handling technologies in ports and on vessels will have a strong role in the future maritime transport. Digitalisation therefore has significant potential across the three MoS pillars.

These legislative drivers are further explored below.

The EU must be ready to meet these challenges, to promote the efficiency of its internal market and to ensure the competitiveness of its maritime industry in particular and of its economy in general.

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<sup>18</sup> In the 2016 CEF Transport Call, Chapter 3.3.3 (MoS priority) states “Exhaust gas cleaning systems shall only be admitted on ships operating on short sea shipping routes outside the SECA”  
[https://ec.europa.eu/inea/sites/inea/files/2016\\_cef\\_tran\\_map\\_general\\_mos.pdf](https://ec.europa.eu/inea/sites/inea/files/2016_cef_tran_map_general_mos.pdf)

However, it is also crucial to understand that available resources to meet these challenges are increasingly limited. This section therefore seeks to highlight development priorities for each pillar based on legislative drivers, while at the same time estimating the amount of investment needed i.e. to complete the network and to ensure the EU is at the forefront of technological advancements as regards the environment, the efficiency of logistics operations and the safety and human element. These development priorities were identified through an extensive consultation exercise involving stakeholders and Member States since 2016 (three stakeholder fora and one forum with Member States<sup>19</sup>), and by taking into account the outcomes of the recent ex-post evaluation on the development of the Motorways of the Sea concept 2001 - 2013<sup>20</sup>.

## 1 LEGISLATIVE DRIVERS

When looking at the past and future development of the MoS/CEF, it is paramount to consider the regulatory context within which the maritime dimension of the TEN-T operates.

In order to support the maritime dimension of TEN-T, the primary objective of the MoS/CEF is to contribute to seamless, efficient and sustainable transport of goods and people within the EU. Therefore, the MoS/CEF first and foremost needs to play a crucial role in the completion of the core and comprehensive network established by Regulation 1315/2013. The target dates for the completion of the networks (2030 and 2050 respectively) must be kept in mind when discussing the future of the MoS/CEF II and in particular the integration of maritime transport in the logistics chain (pillar 2).

In the context of this overall objective, the maritime dimension of the TEN-T network plays a vital role in assisting maritime operators (on the port and ship side) in their strive to keep up with ever stricter international and EU rules and standards.

As highlighted in the previous chapter, this is true for existing MoS projects. As clearly shown in the table below, strict environmental legislation at IMO and EU level has been a strong driver for innovation in the shipping sector in recent years (Pillar 1), specifically leading up and following the implementation of MARPOL Annex VI in the EU acquis. Furthermore, while the majority of current regulatory developments have a significant

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<sup>19</sup> Three stakeholders' fora (one for each pillar) were organised in 2016. MoS stakeholders were asked to contribute to discussion papers for each pillar, which formed the basis for the version of the DIP in June 2016. The first version of the DIP was then discussed with the Member States during a dedicated forum in December 2016.

<sup>20</sup> <https://ec.europa.eu/transport/sites/transport/files/2017-ex-post-evaluation-mos.pdf>

environmental focus, the safety element (Pillar 3) cannot be overlooked. Existing projects under pillar 3 show that safety of navigation and adequate training are pre-requisites for sustainable and efficient shipping.

When selecting the development priorities for the MoS/CEF in the coming years, it is therefore important to be aware of what lies ahead. The table below depicts the main (past and future) legislative drivers at EU and international level, which shaped and will shape the EU's shipping sector.

1. Deadlines for the development of core and comprehensive networks are already set in EU legislation (including i.e. for the development of alternative fuel infrastructure), as are targets for the reduction of the sulphur content of marine fuels outside of SECA areas.
2. The same is known for the upcoming North Sea and the Baltic Sea NOx Emission Control Area (NECA) as from 2021, as well as the entry into force of the new discharge requirements for sewage in the Baltic Sea (2019/2021).
3. The Ballast Water Convention came into force on 8 September 2017, bringing with it a two-year deadline for compliance.
4. As regards the delivery of waste from ships, the EU's planned revision<sup>21</sup> of the Port Reception Facilities Directive (Directive 2000/59/EC) was published in January 2018.
5. Furthermore, a proposal for the revision of Directive 2010/65/EU on reporting formalities should be presented in the first half of 2018<sup>22</sup>. This revision should address the challenges and shortcomings of the existing directive, in particular as regards the lack of harmonisation across Member States' National Single Windows and the deployment of a Europe-wide solution.
6. On safety, discussions are ongoing at IMO level on a number of important aspects, including the safety of passenger ships, related to safety of navigation, fire safety, safety of ships in damaged condition, automatic mooring systems, etc.
7. Even more importantly, discussions are kicking into gear in the IMO on the reduction of greenhouse gas (GHG) emissions from ships.
8. The MRV Regulation<sup>23</sup>, which entered into force in July 2015, has the aim to promote the reduction of CO2 emissions by establishing a system for the monitoring and reporting of verified data on annual fuel consumption, CO2 emissions and other energy related parameters for ships above 5000 gross tons, calling at EU ports from 1st of January 2018.

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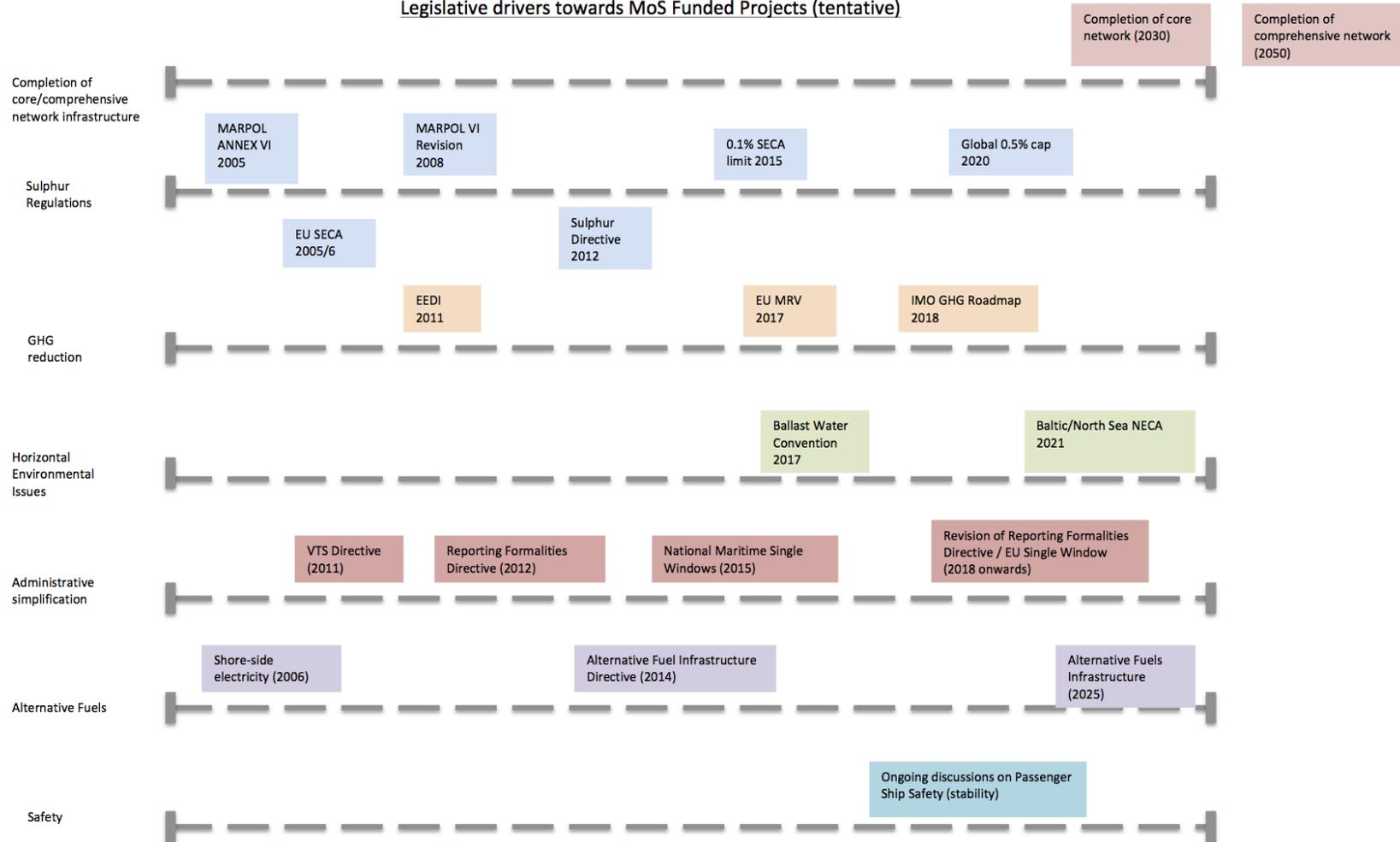
<sup>21</sup> <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2018:0033:FIN>

<sup>22</sup> European Commission Work Programme 2018

<sup>23</sup> Regulation (EU) 2015/757

There is strong pressure from the EU for the IMO Member States to adopt in 2018 an ambitious initial strategy on the reduction of GHG emissions from ships, to ensure shipping plays its role in reaching the targets agreed under the Paris Agreement. The Valletta Declaration on Maritime Transport Policy until 2020, adopted by EU Transport Ministers in March 2017, reiterated the importance of decarbonisation and reduction of air emissions in shipping. In fact, decarbonisation of shipping is the most important forthcoming challenge for the shipping industry – and the MoS/CEF is well placed to help European operators meet this challenge.

### Legislative drivers towards MoS Funded Projects (tentative)



## 2 ENVIRONMENT

The environment is a key area of development for MoS. The introduction of stricter emissions standards in general, including as regards the sulphur content of marine fuels, have produced an immediate need for new ship technologies, operational processes, new infrastructure, and new tools for financing environmental upgrades in the period from 2010 onwards. Other drivers should also be considered when looking into development priorities for the MoS/CEF.

Among these, the global climate agreement reached at the UN climate change conference COP 21 in Paris in December 2015 ("the Paris Agreement"), seen as an historic and landmark instrument in climate action. Though formally lacking wording on international maritime transport, many expect the maritime sector to play its part. The IMO is therefore striving to develop an initial decarbonisation strategy by 2018, including emission reduction objectives for the sector and a list of candidate short-, mid- and long-term further measures with possible timelines for completion. The initial strategy will be adjusted on the basis of the actual data from the IMO data collection system<sup>24</sup>. The adoption of a revised IMO strategy is planned for spring of 2023 after having the opportunity to collect data for three years.

The existing EU MRV scheme, which established a robust system for the monitoring and reporting of verified data on annual fuel consumption, CO<sub>2</sub> emissions and other energy related parameters for ships above 5000 gross tones calling at EU ports<sup>25</sup>, may be aligned with the IMO data collection system if, and to the extent to, the co-legislators find such alignment appropriate.

In view of these developments, climate remains a top priority for the MoS Coordinator.

Various other developments are driving environmental standards that will affect the MoS/CEF priorities.

On air quality for example, the forthcoming Baltic and North Sea NECA and the global sulphur cap coming into force in 2020 can further drive innovation forwards.

Operational discharge of waste from ships is also an important issue, especially in the

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<sup>24</sup> Start of data collection in January 2019, reporting to the IMO by summer 2020

<sup>25</sup> The reporting requirements are applicable from 1st of January 2018 onwards.

context of addressing the problem of marine litter at sea, part of which is generated by the shipping sector. In addition, oily waste, sewage and cargo residues also need to be appropriately managed on board and delivered to port reception facilities. In particular, the designation of the Baltic Sea as a special area under MARPOL Annex IV for sewage discharges from passenger ships (coming into force in 2019/2021), as well as the ongoing issue of delivery of residues from exhaust gas cleaning systems, will require additional investments in adequate facilities in ports for the reception of waste from ships.

Other drivers include accidental pollution, integrated use of marine resources, environmental compensation measures and financing mechanisms for green shipping.

## 2.1 RECOMMENDATIONS

- Support innovative actions for compliance with current and future air pollution reduction targets (SO<sub>x</sub> and NO<sub>x</sub>) on board and in ports, focusing on clean alternative fuels including, but not limited to, LNG, methanol and batteries. Moreover, investments to on-shore power supply systems can significantly contribute to the reduction of harmful emission in the port areas and in general the need of auxiliary engines while in port.
- The decarbonisation of the maritime transport sector is the biggest industry challenge to date. MoS should take a leading role by supporting innovative technologies (i.e. electrification and hybridization), alternative fuels, transition towards non-fossil fuels and efficiency measures in marine engines, as well as on-going initiatives aimed at reduction of greenhouse gas emissions at EU level.
- Support projects looking at reducing operational pollution, i.e. innovative EGCS, reducing emissions to both air and water<sup>26</sup> or supporting the installation of ballast water management systems.
- Projects to support the provision of adequate facilities in ports for the reception and treatment of waste from ships (including oily waste, garbage, sewage, residues from exhaust gas cleaning systems, and cargo residues)
- Projects developing eco-incentive solutions contributing to the greening of SSS and incentivizing a modal shift away from more polluting transport modes should continue to be supported.

The targeted green investments should cover both ports and shipping.

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<sup>26</sup> Only outside SECA areas to comply with 2020 sulphur cap

### 3 INTEGRATION OF MARITIME TRANSPORT IN THE LOGISTICS CHAIN

The quest for ever-increasing efficiency in shipping and port operations is driven by the need to improve competitiveness of EU industries. Transport is a derived demand and hence for the transport sector to serve trade, transport costs must be kept at a minimum. Maximising efficiency on seaside and in ports is important to reduce transport costs and contribute to the competitiveness of EU traded goods and of related EU industrial sectors.

Short sea shipping represents the maritime dimension of the EU but the MoS programme must also consider the means for connecting the ports and their hinterlands. As such, the MoS is the only programme having an impact on the entire EU economic and transport space. Issues such as last-mile connections, connectivity of the regions with particular and special characteristics, including the nine outermost regions and islands, are important considerations in a very complex connectivity network and should be seen as the drivers for the future development priorities for the MoS Programme in this field.

Improving last-mile connections by rail and inland waterways<sup>27</sup> is essential for maritime dimension of the TEN-T to become integrated in the door-to-door logistics chain. This involves not only constructing physical infrastructure to connect ports via rail and with barge terminals to their hinterlands but also improving info-structure (and the related ICT solutions/platforms) to connect the different modes of transport present at a port.

MoS is also the way to connect short-sea links and maritime transport services with the Core Network Corridors (CNCs) and MoS links are the junctions allowing the connection of different CNCs. This is relevant not only for freight transport, but also for waterborne passenger transport, which is often not exploited to its full potential.

Efficient sea-shore side data exchange and cargo clearance procedures are highly relevant for the competitiveness of short sea shipping. As highlighted by stakeholders and Member States, reduced administrative barriers and efficient customs operations are key to boost the competitiveness of SSS sector vis-à-vis other modes of transport, and fully bring the sector within the EU internal market.

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<sup>27</sup> Last mile road connections are also important in Member States where rail and inland waterways connection are not present, or where road connections are the most feasible solution.

### 3.1 RECOMMENDATIONS<sup>28</sup>

- Support smooth and sustainable multimodal transport by fostering modal shift and promoting investments in connections to the hinterland, especially last-mile connections by rail, inland waterways, and road when necessary<sup>29</sup>. Connections integrating maritime transport into CNC should be prioritised.
- Ensure seamless maritime links by promoting the further development and deployment of ICT solutions for the optimisation of shipping and port operations. Supported projects should aim at supporting MoS and Core Network Corridors integration, piloting advanced IT connections in ports and between the maritime leg, the ports and their hinterland, promoting modal integration and interoperability, facilitating European trade and increasing European territorial cohesion. Optimisation of MoS terminals should also be considered in order to increase the efficiency in loading and discharging operations.
- Specific MoS based information pipelines / fast trade lanes should be developed to boost paperless logistic, as the paperwork still required is broadly acknowledged as a bottleneck and major hindrance for the development of MoS. These systems will also lead to advanced information services where more and better quality information will be provided, managing multiple modes of transport and combining on-line freight visibility and traceability data in a single interface.
- Particular attention should be paid to efficient customs operations and cargo clearance, National Single Windows and their integration at EU level, taking into account the development of both the European Customs Single Window Environment and the European Maritime Single Window Environment.
- Support the ports in providing more efficient and better handling services, notably through the upgrade of freight terminals and extension of berth facilities. Strongly support connectivity and territorial cohesion by taking into account the needs and characteristics of peripheral regions, outermost regions and islands, as well as the extension of the network to neighbouring countries and to the Arctic region.

## 4 SAFETY, TRAFFIC MANAGEMENT, HUMAN ELEMENT

International maritime transport is regulated at global level by the International Maritime Organisation (IMO), the United Nation's specialised agency with responsibility for the safety and security of shipping and the prevention of marine pollution by ships. Shipping is a global

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<sup>28</sup> Recommendations in this chapter and in the following chapters are not prioritised and are seen as having equal value

<sup>29</sup> Member States that have no rail or inland waterways need to be able to improve road connections

sector, and as such the vast majority of rules regulating maritime transport are discussed and adopted at IMO level. Through the implementation of IMO Conventions via EU legislation, to ensure a consistent level of application, the EU has achieved a high level of safety at sea, in cooperation with its Member States, its Agencies (including EMSA) and industry operators such as ports, shipowners, and classification societies.

However, work will continue to further improve safety at sea and in ports as well as maritime surveillance and management in combination with measures enhancing the efficiency of maritime transport (goods and passengers) and maritime traffic (vessels) in a sustainable manner. Future objectives have been outlined in the Europe 2020 strategy, which is relevant in this context as it highlights the importance of the “human element” by encouraging growth that is smart through more effective investments in education, research, and innovation. For 2050, the vision includes the deployment of intelligent autonomous waterborne transport management systems.

Furthermore, as highlighted above, work is ongoing at IMO as regards several aspects related to safety of navigation, fire safety, safety of passenger ships in damaged condition, automatic mooring systems, evacuation systems and revision of life saving appliances requirements in a goal based framework.

#### 4.1 RECOMMENDATIONS

- Focus on further developing European-wide maritime ICT services for sea traffic management, “intended route” monitoring and situational awareness, which overall foster safety, effectiveness and competitiveness. It should lead to improved predictability of the estimated times of arrival and departure (ETA and ETD), contributing to more efficient planning for all involved parties, including hinterland actors along the entire logistic chain. In this context, real-time vessel traffic monitoring and surveillance should also be further developed.
- Support further development of Sea Traffic Management by implementing a mechanism of coordination and governance between involved stakeholders and Member States. Improve just-in-time operations through better exchange of information between maritime stakeholders and optimised sea voyages, while promoting bunker savings and greenhouse gas emissions reduction.
- Promote maritime careers by supporting training of maritime professional (onboard and onshore) on the safety aspects of new technologies (e.g. handling/bunkering of alternative fuels, contingency planning, emergency procedures, cybersecurity).
- Continue to support navigational safety through continuous and improved seabed surveys and icebreaking services.

- Promote port-systems enabling automatic alco-controls on road transports.

## 5 CHALLENGES AND OPPORTUNITIES

In addition to the needs highlighted above for each pillar, which is the outcome of consultations with stakeholders and Member States, additional specific challenges have been identified through consultation. Maritime industry is a volatile market, operating in a fluid international environment.

In general, industry stakeholders and Member States have highlighted a number of important issues pertaining to the overall structure and functioning of the Motorways of Sea/CEF program.

In particular, after several years of application, some Member States are questioning whether too much focus has been put on core ports, while comprehensive ports are not benefitting as much from the program. According to many stakeholders, core and comprehensive ports should benefit from equal treatment. Many are also stressing that ports outside of the core/comprehensive list are excluded altogether despite potentially being important for local trade. Eligibility criteria are also difficult to apply across all ports since the commercial and geographical context varies greatly.

The Coordinator welcomes these considerations, as they are very important in the context of the future revision of the TEN-T Regulation where the overall structure and functioning of the MoS/CEF will be addressed. There should not be any discrimination between core and comprehensive ports as long as a project is based on a strong business case.

Nevertheless, a number of specific challenges that emerged from the consultation process are presented in this chapter.

### 5.1 CONNECTIVITY - OUTERMOST AND PERIPHERAL REGIONS

As stated above, one of objectives of the MoS/CEF is to strengthen the European maritime transport network through maritime links projects. Movement with no barriers for goods and people is one of the key principles of European integration.

Connectivity is however even more important when it comes to islands, outermost<sup>30</sup> and peripheral regions, including the Arctic region. While the TEN-T and CEF Regulations have in theory recognised the specificities of these regions and, for example, listed several ports in these regions as core and comprehensive ports, in practice those regions still face several obstacles specifically as regards access to MoS/CEF, due to its strict eligibility criteria.

Outermost regions, for example, struggle to meet the two-Member State requirement, as maritime links tend to operate between the region and a port on their mainland (i.e. within the same Member State). Furthermore, possible connections between outermost regions/islands or between islands often are not eligible because they involve two comprehensive ports. Restrictions also apply to potential projects seeking to connect outermost regions/islands to neighbouring non-EU countries. In addition, the 30% co-funding rate is often considered too low to be attractive for projects involving those regions, which do not have easy access to complementary means of financing.

Furthermore, Arctic peripheral maritime regions such as Northern Sweden and Finland face different challenges. Shipping in these regions operates in difficult conditions, requiring icebreaking services to ensure safety of navigation. As Arctic navigation develops and the Northern Sea Route becomes more viable, Arctic ports will increasingly become an important entry point for freight into Europe. Connectivity between these regions and CNC is therefore becoming a priority. However, these peripheral regions currently cannot be found on the TEN-T map. Therefore, the northernmost Europe and the Arctic region should be efficiently connected to the European transport network.

In order to ensure these regions become an integral part of the TEN-T Network and are effectively connected to Europe, the following recommendations are made.

## Recommendations

- Raise the co-funding rate for these potential projects to 40%, to encourage investments
- Connect peripheral regions and Arctic regions to CNC to ensure seamless freight transport between peripheral entry points and the centre of the EU. While MoS can have a role in ensuring navigational safety (by funding dedicated projects),

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<sup>30</sup> Martinique, Mayotte, Guadeloupe, French Guiana, Réunion, Saint-Martin, Madeira, the Azores, Canary Islands

ultimately there is a strong need to extend the TEN-T corridors to better connect peripheral regions.

## 5.2 CONNECTIVITY – CLOSE NEIGHBOURHOOD

MoS should be seen as the instrument supporting the development of complementary efficient logistics chains in the Mediterranean, Black Sea and Eastern neighbouring countries. It has a role to play in the context of so-called macro-regional strategies and seek synergies with a number of transport initiatives developed by the Union for Mediterranean.

Only if we look at Western Mediterranean region, the largest cargo traffic volumes are transported between the South of Spain and Morocco rather than between European ports. Further to the East, ports in France and Italy also connect to North Africa through regular ro-ro lines. In the past years, the political unrest in the Northern African countries and the related economic instability has put a strain on North-South ro-ro traffic across the Mediterranean. With regard to the future, however, trade and consequently maritime transport with neighbouring African countries is assumed to have strong development potentials. It is therefore of utmost importance that future MoS projects will capture this potential and would include possibility of concrete projects allowing to increase the quality of network and better connectivity with EU's close neighbourhood.

### Recommendations

- Promote better MoS concept in EU's close neighbourhood.
- Establish a better cooperation with DG NEAR and UFM to increase synergies between applicable funding programmes.

## 5.3 THE MARITIME DIMENSION IN A CHANGING EUROPE

The purpose of this chapter is to look at the future of MoS, in the context of a number of political drivers. In addition to the sector-specific challenges highlighted previously, external political developments can also have significant consequences on the EU maritime sector.

One of these is the United Kingdom's exit from the EU (Brexit). Its overall impact is still uncertain; it is therefore too early to estimate the impact of Brexit on trade and on the overall competitiveness of the EU shipping industry. However, in a scenario where the UK is

no longer part of the EU, this will have an impact on the development of the North Sea – Mediterranean Corridor (see map [here](#)<sup>31</sup>), which currently links Ireland and Northern Ireland to mainland Europe (France, Belgium, the Netherlands and Luxembourg) and to the Mediterranean (Marseille), passing through the UK. In addition, in a scenario where the UK (and Northern Ireland) are no longer part of the TEN-T network, the Republic of Ireland will be separated from the rest of the TEN-T Network, effectively becoming a peripheral region. Furthermore, ports (core, but also comprehensive) with a more strategic geographical location to access the European markets could face the need for capacity upgrades.

## Recommendations

- While it is difficult at this stage to predict the impact of Brexit on the TEN-T Networks and therefore to make firm recommendations, the Coordinator will continue to monitor the negotiations and take the necessary measures (in cooperation with the Member States and stakeholders involved) to maintain connectivity and ensure access to the mainland.

## 5.4 ACCESS TO FINANCE

A coherent mix of public funding and private financing is the way forward necessary for a successful completion of TEN-T Network.

CEF grant support needs to be focused on the projects of highest European added value, including horizontal priorities like Motorways of the Sea.

EIB support and guarantees from EFSI are of utmost importance; nevertheless a stable allocation of grant calls in the context of multi-annual financial perspective should not be neglected.

For this purpose, calls should be launched regularly according to a pre-existing timetable, to increase predictability, facilitate long-term planning of investments and better promote synergies between different funding instruments.

Actions should be complemented by EIB initiatives. In this context it is worth mentioning that with regard to maritime transport,

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<sup>31</sup> [https://ec.europa.eu/transport/themes/infrastructure/ten-t-guidelines/corridors/northsea-med\\_en](https://ec.europa.eu/transport/themes/infrastructure/ten-t-guidelines/corridors/northsea-med_en)

under the EFSI the EIB is currently piloting the “Green Shipping Guarantee Programme<sup>32</sup>”. It seeks to promote better financing conditions for operators wishing to invest in new environmentally friendly vessels or in reconversions/retrofitting of existing vessels for the promotion of sustainable transport. The program accelerates investments in sustainable technologies (LNG, exhaust gas cleaning systems operating in closed loop mode, ballast water, energy efficiency) to comply and to go beyond the EU environmental legislation and in particular to facilitate the implementation of the "Sulphur Directive".

Furthermore, the “CEF Blending Call” launched in February 2017 as cooperation between DG MOVE and the European Investment Bank (EIB) represents an additional opportunity to leverage private investments for port infrastructure and innovative shipping projects by blending MoS grants with EIB financing. As only one MoS proposal<sup>33</sup> was selected for funding in the first phase of the call, it is important to further promote the Blending mechanism as a funding alternative for stakeholders.

Further development of eco-incentive measures can also provide an additional form of financing. In this context, the Coordinator draws attention to the ongoing CEF Med-Atlantic Ecobonus project<sup>34</sup> analysing the development of eco-incentive solutions contributing to greening the European MoS corridors.

## Recommendations

- While leveraging private financing is crucial to maintain and improve transport infrastructure in Europe, it is also crucial to understand that MoS/CEF cannot and should not be substituted by private investment instruments. MoS grants should address financing gaps that cannot easily be financed by other means – i.e. innovative projects, connectivity issues involving islands and outermost regions, etc.
- The MoS/CEF must therefore be equipped with adequate resources to implement the development priorities highlighted in this DIP.
- The importance of Motorways of the Sea has to be well reflected in the next generation CEF Regulation and a robust financial framework for the maritime dimension of TEN-T has to be secured in the next Multi-Annual Financial Framework 2021-2027.

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<sup>32</sup> <http://www.eib.org/projects/pipelines/pipeline/20150334>

<sup>33</sup> “BCLink: MoS for the future” has received co-funding under the CEF Blending Call. The MoS link between the ports of Barcelona and Civitavecchia, through the use of the largest to date Ro-Ro vessels on the market, allows the modal shift of high volumes of cargo from road to sea, with significant benefits in terms of environmental impact and logistics integration.

<sup>34</sup> <https://ec.europa.eu/inea/en/connecting-europe-facility/cef-transport/projects-by-country/multi-country/2014-eu-tm-0544-s>

## 5.5 EXPLOITING SYNERGIES

Defining clear funding priorities is the first step to better exploit available – if diminishing – resources. However, it is also important to consider the feedback from past, current and potential applicants, as the MoS Programme cannot exist without committed stakeholders and excellent flagship projects.

Therefore, it is crucial to structure MoS in view of attracting and subsequently develop as many good projects as possible under limited resources. This requires not only an efficient selection process, but also application and eligibility requirements that do not discourage stakeholders from putting forward their proposals. MoS stakeholders have often expressed their concerns as regards the bureaucratic elements of the application process, and the uncertainty around the eligibility criteria. Eligibility criteria and terminology such as the definition of “innovative actions” and “wider benefits”, should be further clarified in future calls. For this reason, the Coordinator has attempted to present his interpretation of the qualification criteria for further discussion (see Chapter II.2)

As regards the funding allocation, while general calls are often oversubscribed, existing resources such as for example the cohesion envelope are not always fully utilised. Synergies between Motorways of the Sea project and CNC corridor projects in CNC ports are not always well exploited. Furthermore, with feasibility studies no longer being eligible in recent calls, many potential projects needing further research before deployment are discouraged from applying. Synergies with other funding programs such as the European Structural and Investment Fund (ESIF), the Cohesion Fund<sup>35</sup> and EU’s Research and Innovation Program Horizon 2020 can be explored, in view i.e. of ensuring adequate infrastructural developments and of complementing ongoing research in innovative solutions with real-life testing and deployment.

The synergies and specific maritime related co-operation programmes should be developed with other funding instruments, especially with the frame work programme for research and innovation. (FI comments to check if it collates with the text).

### Recommendations

- A single funding envelope dedicated to all aspects of maritime transport (port infrastructure, links, wider benefits) under CEF could ensure better use of resources.

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<sup>35</sup> From the perspective of Central and Eastern Europe countries, the Cohesion Fund is crucial for the realisation of many different infrastructural investments targeted on the development of seaports (e.g. construction of quays or modernization of fairways).

## IV. Conclusions and summary of recommendations

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Motorways of the Sea is the maritime dimension of TEN-T, and as such it plays a crucial role in supporting Short Sea Shipping and ensuring the European maritime sector is safe, sustainable and well integrated in the EU logistics chain. An efficient and environmentally sound maritime transport sector in general and SSS in particular, is the precondition for a fully functioning internal market. Ultimately, this keeps Europe competitive, and contributes to growth and employment.

The MoS/CEF has already contributed significantly to innovative projects in the field of environmentally friendly shipping, green infrastructure and safety of operations, as well as to the upgrading of maritime links for the purpose of seamless integration of maritime transport into the logistics chain. This is in total translated into a cumulative EU funding of approximately EUR 857.5 million since 2001.

However, the EU SSS sector continues to face a number of challenges. Many of those reflect requirements already set in EU or international regulations, such as the forthcoming global sulphur restrictions in 2020 and the entry into force of NECA limits in the Baltic and North Sea in 2021.

The decarbonisation of maritime transport will also be crucial if the EU wants to fulfill its commitments under the Paris Agreement. The debate is already ongoing at IMO and is expected to significantly speed up in the coming years, pushed in part by the EU's ambitions on climate matters.

Environmentally sound waterborne transport is meaningless if goods and passengers cannot easily access the internal market. The MoS/CEF therefore will be encouraged to step up its work to better integrate Short Sea Shipping in the overall logistics chain.

Infrastructure upgrades are essential, in particular when it comes to last-mile connections. The MoS/CEF should strongly focus on ICT developments (flow management, custom clearance, etc.) that have the potential to further optimize maritime operation while at the same time improving their environmental and safety performance.

In parallel there is a need for administrative simplification, by streamlining complex and often repetitive reporting procedures, with a view to create a European Maritime Single Window for maritime transport.

In all MoS projects and in maritime transport in general, safety is the horizontal precondition for operations. As maritime transport and Short Sea Shipping volumes grow

and new technologies gain ground, investments in navigational safety and in the training of maritime professionals is increasingly important. Overall, the concept of Sea Traffic Management systems brings elements of safe navigation together with optimisation of maritime operations on both the logistics and environmental side, and should therefore be strongly supported.

Looking towards 2020, the MoS/CEF needs to be ready to respond to these challenges, bearing in mind that resources are increasingly limited. It is therefore important for the MoS/CEF to focus on a set of clear priorities, summarised below:

### **Pillar 1: ENVIRONMENT**

- Support innovative actions for compliance with current and future air pollution reduction targets (SECA and NECA) on board and in ports: LNG, alternative fuels and scrubbers will be paramount to meet the new sulphur limits in 2020 and beyond. Moreover, investments to on-shore power supply systems can significantly contribute to the reduction of harmful emission in the port areas.
- The decarbonisation of the maritime transport sector is the biggest industry challenge to date. MoS should take a leading role by supporting innovative technologies (i.e. electrification and hybridization), alternative fuels and efficiency measures as well as on-going initiatives aimed at reduction of greenhouse gas emissions at EU level. MoS should further pilot actions supporting the transition from fossil to non-fossil fuels in the maritime sector.
- Support projects looking at reducing operational pollution, i.e. innovative EGCS, reducing emissions to both air and water<sup>36</sup> or supporting the installation of ballast water management systems.
- Projects to support the provision of adequate facilities in ports for the reception and treatment of waste from ships (including oily waste, garbage, sewage, residues from exhaust gas cleaning systems, and cargo residues)
- Projects developing eco-incentive solutions contributing to the greening and development of sustainable Short Sea Shipping encouraging a modal shift away from more polluting transport modes should continue to be supported.

### **Pillar 2: INTEGRATION OF MARITIME TRANSPORT IN THE LOGISTICS CHAIN**

- Support smooth and sustainable multimodal transport by fostering modal shift and promoting investments in connections to the hinterland, especially last-mile

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<sup>36</sup> Only outside SECA areas to comply with 2020 sulphur cap

connections by rail and inland waterways. Connections integrating maritime transport into CNC should be prioritised.

- Support the ports in providing more efficient and better handling services, notably through the upgrade of freight terminals and extension of berth facilities.
- Ensure seamless maritime links by promoting the further development and deployment of ICT solutions for the optimisation of shipping and port operations. Supported projects should aim at supporting MoS and Core Network Corridors integration, piloting advanced IT connections in ports and between the maritime leg, the ports and their hinterland, promoting modal integration and interoperability, facilitating European trade and increasing European territorial cohesion. Optimisation of MoS terminals should also be considered in order to increase the efficiency in loading and discharging operations.
- Specific MoS based information pipelines / fast trade lanes should be developed to boost paperless logistic, as the paperwork still required is broadly acknowledged as a bottleneck and major hindrance for the development of MoS. These systems will also lead to advanced information services where more and better quality information will be provided, managing multiple modes of transport and combining on-line freight visibility and traceability data in a single interface.
- Particular attention should be paid to efficient customs operations and cargo clearance, National Single Windows and their integration at EU level, taking into account the development of both the European Customs Single Window Environment and the European Maritime Single Window Environment.
- Strongly support connectivity and territorial cohesion by taking into account the specific needs and characteristics of peripheral regions, outermost regions and islands, as well as the extension of the network to neighbouring countries.
- Supporting connectivity and territorial cohesion also means keeping in mind that the TEN-T network for ports consists of a dense network of TEN-T ports on the comprehensive network of importance to the European shipping industry.
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### **Pillar 3: SAFETY, TRAFFIC MANAGEMENT AND HUMAN ELEMENT**

- Focus on further developing European level services for maritime ICT for sea traffic management, “intended route” monitoring and situational awareness, which overall foster safety, effectiveness and competitiveness. It should contribute to more efficient planning for all involved parties, including hinterland actors along the entire logistic chain. In this context, real-time vessel traffic monitoring and surveillance should also be further developed.
- Support further development and deployment of Sea Traffic Management by implementing a mechanism of coordination and governance between involved

stakeholders and Member States. Improve just-in-time operations through better exchange of information between maritime stakeholders and optimised sea voyages, while promoting bunker savings and greenhouse gas emissions reduction.

- Promote maritime careers by supporting training of maritime professional (onboard and onshore) on the safety aspects of new technologies (e.g. handling/bunkering of alternative fuels, contingency planning, emergency procedures, cybersecurity)
- Continue to support navigational safety through continuous and improved seabed surveys and icebreaking services.

Moving forward, a number of specific challenges have been identified in this DIP. First, more work is needed to ensure better connections between the core networks and peripheral and outermost regions. Current eligibility criteria do not always take into account the specificities of these areas and should therefore be revised to ensure the necessary flexibility. The MoS/CEF should also have a stronger role as regards the integration of peripheral regions with a stronger maritime dimension into the network, i.e. by supporting projects dealing with Arctic navigation and icebreaking or connecting better with the outermost regions..

The debate on the role of peripheral regions is also significant in the context of the forthcoming British exit from the EU. While it is too early to speculate its direct impact on the MoS/CEF, it will undoubtedly have an effect on trade and on the internal market. Furthermore, CNCs and/or eligibility criteria under the MoS/CEF might have to be revised to ensure Ireland remains well connected to mainland Europe.

As already mentioned above, resources are required in order for the MoS/CEF, and for the sector in general, to meet the challenges of tomorrow and ensure the full integration of waterborne transport in the TEN-T. Due to budgetary constraints, it is important for the industry to be fully aware of the opportunities offered by the new financing instruments offered under the European Strategic Investment Fund (EFSI) in cooperation with the European Investment Bank (EIB). However, grants offered under the MoS/CEF are of paramount importance for the maritime industry, in particular as regards the financing of innovative projects that might not yet offer a return on investments within the timeframe required by the EIB or commercial banks. It is therefore vital that the MoS/CEF is maintained and guaranteed an adequate amount of resources in the form of grants.

Finally, several important elements emerged from consultation with stakeholders and Member States which touch upon the overall functioning of the TEN-T network in general and of the MoS/CEF in particular. The debate about the role of core and comprehensive ports, and on how the MoS Funding Programme will be shaped to better respond to current

and future challenges, should be continued in the context of upcoming negotiations of the next Multi Annual Financial Framework.



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