European Shortsea Network

SHORT SEA SHIPPING
Ufficio di promozione - Italia

THE EUROPEAN SHORT SEA SHIPPING NETWORK

SHORT SEA SHIPPING: CHALLENGES AND OPPORTUNITIES TOWARDS 2027

DRAFT PAPER

RAM S.p.A. Logistica · Infrastrutture · Trasporti

INTERMODAL PROMOTION CENTRE PORTUGAL

SPC Shortsea Promotion Centre Finland

spc Multimodal Transport Solutions

Klaster intermodalnog prijevoza

SPC GREECE Shortsea Promotion Center

Irish Maritime Development Office

TURKEY Short Sea Shipping

SHORTSEA SHIPPING Shortsea Promotion Center Poland

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MSPC MALTA SHORTSEA PROMOTION CENTRE

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1. THE EUROPEAN SHORTSEA SHIPPING NETWORK: PROMOTING SSS FOR 23 YEARS

Since the early 90s the European Commission has issued various regulations and communications for the **promotion of SSS** across Europe.

EU Communication **"Development of Short Sea Shipping in Europe: Prospects and Challenges"** ((COM (1995) 317 final) examined the potential contribution of SSS to the achievement of sustainable mobility as outlined in the White Paper from 1992, which aimed at achieving a more sustainable European transport network through the switch to more environmentally friendly means of transport.

Within said Communication, the Commission suggested a working definition of SSS: *"Short Sea Shipping means the movement of cargo and passengers by sea, between ports situated in geographical Europe or between those ports and ports situated in non-European countries having a coastline on the enclosed seas bordering".*

Later, the EU Communication **"Developing Short Sea Shipping in Europe: A Dynamic Alternative in a Sustainable Transport Chain"** ((COM (1999) 317 final) renewed the European Commission's commitment towards the long-term goal of making maritime transport a viable alternative to road transport.

The communication describes the strategic vision of maritime transport as a fully integrated component of intermodal door-to-door transport services, as well as a significant contribution to sustainable development, cohesion, and competitiveness.

In June 2002, the European Union Transport Ministers held an informal meeting in Gijon (Spain) dedicated entirely to Short Sea Shipping. Following this meeting, the Commission prepared a **Programme for the Promotion of Short Sea Shipping[1].**

[1] Programme for the Promotion of Short Sea Shipping, COM(2003) 155 final, 7.4.2003

The Programme set out 14 actions that have the objective to improve Short Sea Shipping and remove obstacles to its development:

1. Implementation of the Directive on certain reporting formalities for ships to arrive in and/or depart from ports in the Member States (IMO-FAL)
2. Implementation of Marco Polo
3. Standardization and harmonization of intermodal loading units
4. Motorways of the Sea
5. Improving the environmental performance of Short Sea Shipping
6. Guide to Customs Procedures for Short Sea Shipping
7. Identification and elimination of obstacles to making Short Sea Shipping more successful than it is today
8. Approximation of national applications and computerization of Community Customs procedures
9. Research and Technological Development
10. One-stop administrative shops
11. Ensuring the vital role of Short Sea Shipping Focal Points, which are representatives of national maritime administrations. They are responsible for Short Sea Shipping in their administrations and should be coordinated by the European Shortsea network
12. **Ensuring good functioning of and guidance to Short Sea Promotion Centres (Short Sea Promotion Centres (SPCs) or, in other words, national Short Sea Shipping Promotion Bureaux are industry-driven, impartial bodies promoting Short Sea Shipping)**
13. Promote the image of Short Sea Shipping as a successful transport alternative
14. Collection of statistical information

The establishment of the **Shortsea Promotion Centres (SPCs)** at a European level, comes from the need indicated in the above-mentioned Communication ((COM 1999) 317 final) and underlined by the Maritime Institute Forum (MIF) in 1995, to change the incorrect and negatively perceived image of the maritime transport industry that was obstructing its potential future development.

The first promotion office was established in Holland in 1997, followed by Belgium, France, and then Finland. The first official meeting (8th March 2001) was held by the Dutch SPC in Holland. The second official meeting was held on June 28th of the same year in Naples and was organized by the Italian SPC.

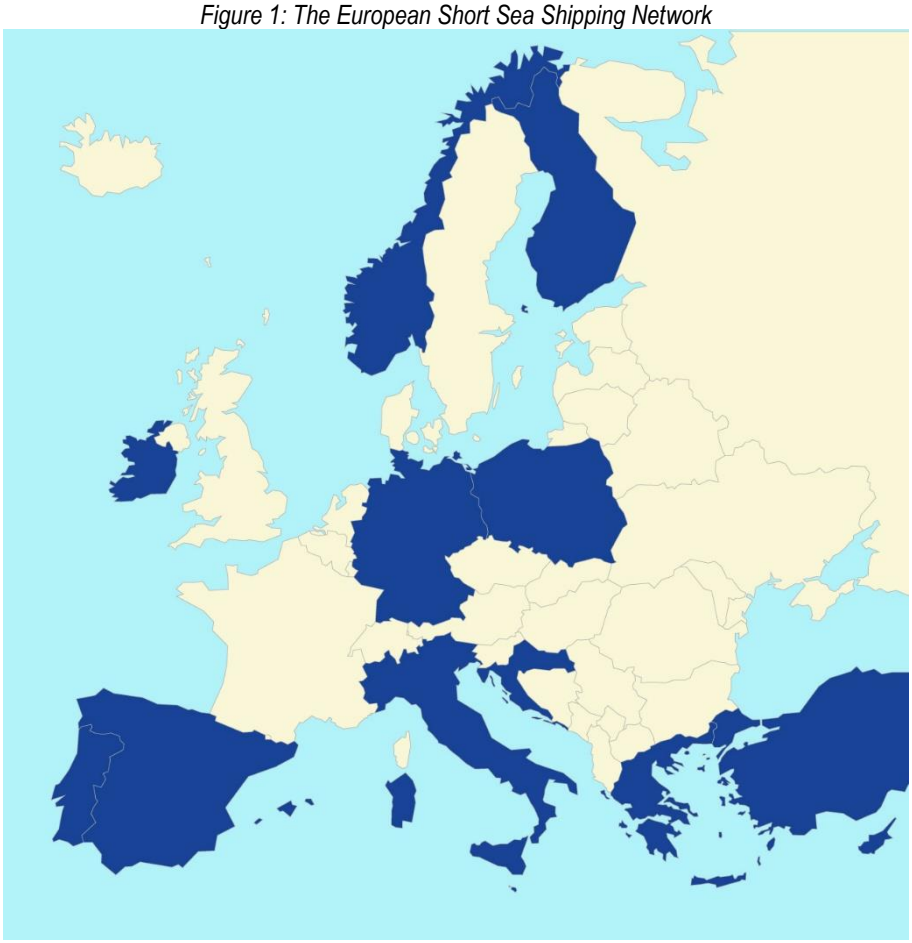
Thus, **Shortsea Promotion Centers were created with the following objectives:**

- Educate shippers and, especially, operators on the possibilities and advantages of the SSS.
- Collect and provide information on available and potential services of SSS.
- Identify and analyze problems or obstacles that may affect the competitiveness of SSS.
- Provide reports and analysis to companies and public bodies.
- Promote strategic alliances between operators in the transport chain with a multimodal perspective of short sea transportation.
- Reinforcing the complementarity between maritime and land modes, particularly road transport, when setting the transport logistic chain.

The European Shortsea Network (ESN) includes all SPCs in the EU with the goal of coordinating their activities and promoting SSS through the involvement of the main international stakeholders.

Nowadays **13 Promotion Centers operate under the ESN,** which gathers the SPCs with the goal of coordinating their activities at EU level and promoting SSS through the engagement of the main stakeholders. The active SPCs of the ESN are: Croatia, Cyprus, Finland, Germany, Greece, Ireland, Italy, Malta, Norway, Poland, Portugal, Spain and Turkey.

Figure 1: The European Short Sea Shipping Network



Sources: ESN elaboration, 2022

2. EU SHORTSEA SHIPPING IN A NUTSHELL

The European Union strongly supports their maritime transport system and has taken many different policy initiatives to keep the EU fleet competitive as well as strict enforcement of international standards within the EU.

In particular, EU geography is favorable to the development of SSS. With more than 67,000 km of coastline, very few industrial centers are located more than 400 km from a seaport. In addition, the EU has some 25,000 km of navigable rivers and canals.

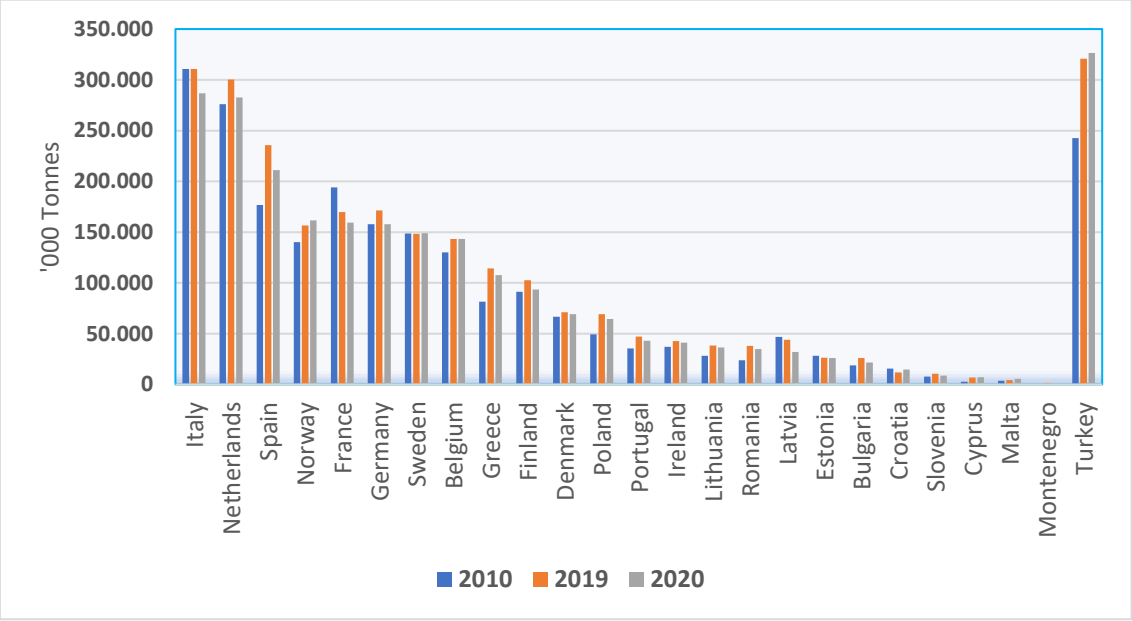
Moreover, the recent geopolitical situation across the world has given SSS a few advantages. China's zero covid policy have aggravated problems in supply chains worldwide, especially in the Mediterranean, and have had a direct or indirect impact on European industries, which have opted on the recovery of production in Europe and America to the detriment of Asia.

Beyond being on trend, the shortsea shipping routes have proven to be the most effective solution to these disruptions, being not only strategic for industries but more sustainable in the short and long term. Facing global supply chain adaptations, energy dependency issues and the urgent need to decarbonize the sector, as well as the need for qualified workforce for intermodal transport, see highway in the Mediterranean are becoming great commercial routes.

Therefore, more and more specialized talent capable of managing intermodal transport logistics chains might be needed because of this changing scenario.
In the context of European Union transport statistics it is defined as maritime transport of goods between ports in the EU (sometimes also including candidate countries and EFTA countries) on one hand, and ports situated in geographical Europe, on the Mediterranean and Black Seas on the other hand.

In analyzing traffic flows the actual number of tons transported is not the only value that matters. The distance over which freight is transported should be considered as well in order to fully understand the transport phenomena. The same tons of freight could be transported over 1km or 1000km. Unfortunately, the value of ton*km is far too difficult and costly to calculate. For this reason, this paper uses the value of tons, which, to a certain extent, penalizes the data on SSS freight traffic. The following figure shows the number of tons handled by SSS in Europe in 2010, 2019 and 2020.

Figure 2: SSS of freight, 2010, 2019 and 2020



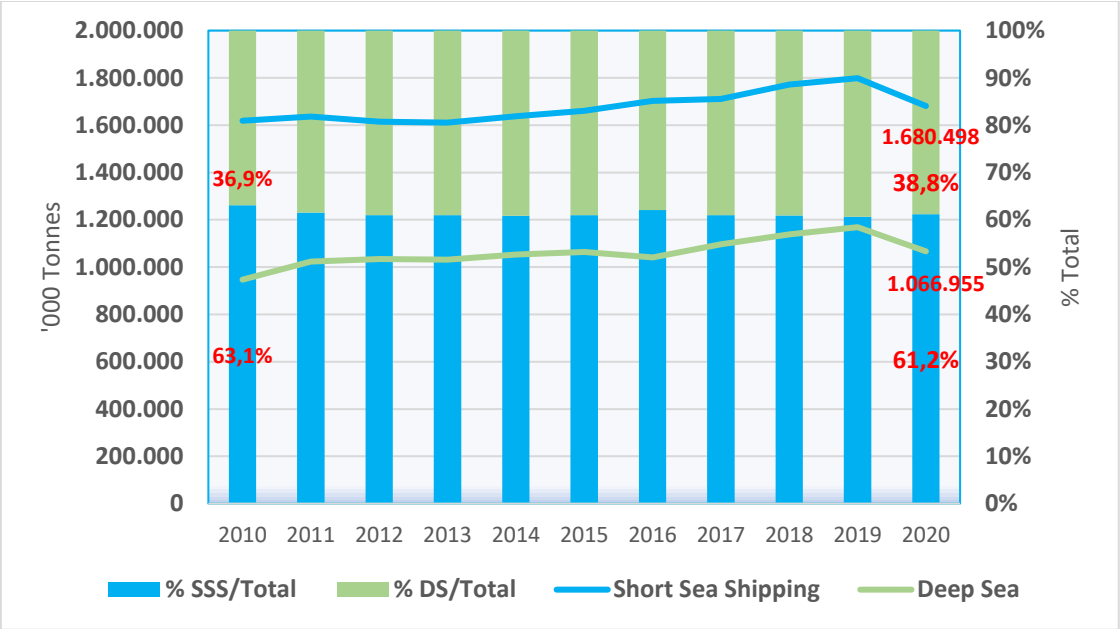
Source: ESN elaboration on Eurostat data

As already represented by Eurostat, all EU Member States registered a fall in short sea shipping between 2019 and 2020 but four: Malta (+27.0 %), Croatia (+23.0 %), Cyprus (+2.8 %) and Sweden (+0.4 %). For Malta, the increase is mostly due to higher levels of dry bulk goods handled in relation to the rapid development of construction and transportation industry. In addition, the EFTA country Norway as well as the candidate country Turkey also recorded a positive trend between 2019 and 2020 (+3.1 % and +1.8 %, respectively). The largest relative decreases in short sea shipping among the EU Member States were recorded by Latvia (-27.0 %), Bulgaria (-17.2 %), Slovenia (-16.7 %) and Spain (-10.5 %).

Italy was the major short sea shipping country in the EU in 2020, with 287 million tons, representing a share of 14.4 % of the total tonnages of EU short sea shipping in 2020. The Netherlands followed with 283 million tons and then Spain with 211 million tons of short shipped goods recorded in their main ports.

The overall increase in short sea shipping recorded by the main EU ports consolidated the gradual recovery seen in EU short sea shipping following the economic downturn in Europe in 2009 and reached a new high in 2019. However, this positive trend was put to an end in 2020 because of the COVID-19 pandemic and the subsequent restrictions put in place in the EU and worldwide. The total gross weight of goods transported as part of EU short sea shipping is estimated at almost 1.7 billion tons in 2020, a decrease of 6.6 % from the previous year.

Figure 3: Gross weight of seaborne freight transported to/from main ports by type of shipping, EU, 2010-2020



Source: ESN elaboration on Eurostat data

Short sea shipping made up 61,2 % of the total sea transport of goods to and from the main EU ports in 2020, 0.6 percentage points more as compared to 2019. When looking at the reporting countries, the share of short sea shipping in total sea transport varies considerably.

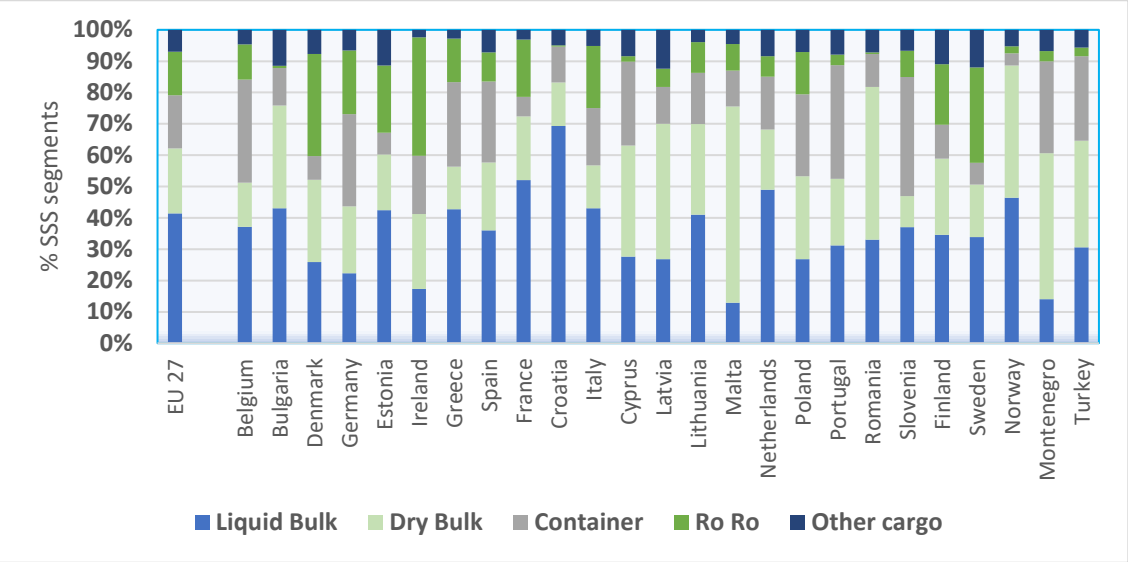
The predominance of short sea shipping of goods over deep sea shipping was particularly pronounced in Malta, Cyprus, Finland, Sweden, Denmark, Bulgaria, Ireland, Latvia, Italy, Croatia, Estonia, Romania, Greece, Poland and Lithuania, as well as in the EFTA country Norway and in the candidate countries Montenegro and Turkey, all with short sea shipping shares of 70 % or more in their main ports.

Geographical considerations, such as long coast lines or a large number of inhabited islands, plays a part in explaining the high share of short sea shipping in most of these countries. A large volume of feeder services to or from hub ports also explains the high degree of short sea shipping transport in countries which function as regional trans-shipment points.

In contrast, the share of short sea shipping is lower in countries with major ports focused on intercontinental trade. In 2020, it was lower than 63 % in France, Portugal, Germany, Belgium, the Netherlands, Spain and Slovenia.

With regards to the type of cargo, liquid bulk remained dominant in EU short sea shipping in all regions, as shown in the following figure.

Figure 4: Short sea shipping of freight by type of cargo, 2020



Source: ESN elaboration on Eurostat data

At 696 million tons, liquid bulk accounted for 41 % of the total short sea shipping of goods to and from main EU ports in 2020. Liquid bulk was followed by dry bulk at 349 million tons (21 %), containers at 285 million tons (17 %) and roll on - roll off (Ro-Ro) units at 233 million tons (14 %). For liquid bulk, the Netherlands had the largest volume of short sea shipping in 2020 (139 million tons), followed by Italy (123 million tons). Netherlands also led the EU rankings for short sea shipping of dry bulk goods (54 million tons). Spain was the main country in terms of short sea shipping of goods in containers (54 million tons) and Italy in terms of Ro-Ro units (57 million tons).

The COVID-19 pandemic and the subsequent restrictions put in place in the EU and worldwide had a lesser impact on short sea shipping of containers.

3. THE STRATEGIC ROLE OF THE SHORT SEA SHIPPING IN THE FRAMEWORK OF THE EU POLICIES

Stimulating the development of Short Sea Shipping has always been a priority for the EU. Since SSS can take over significant amounts of freight traffic from Europe's crowded roads and reduce major road congestion, it is crucial for achieving a clean, safe and efficient European transport system, as was already set out in the Commission's 2001 White Paper. Moreover, for this reason, SSS is a cornerstone of all policies aiming at reducing the environmental impact of the transport sector.

In this context, the **Paris Agreement** is a legally binding international treaty on climate change. It was adopted by 196 Parties at COP 21 in Paris, on 12 December 2015 and entered into force on 4 November 2016. Its goal is to limit global warming to well below 2, preferably to 1.5 degrees Celsius, compared to pre-industrial levels. To achieve this long-term temperature goal, countries aim to reach global peaking of greenhouse gas emissions as soon as possible to achieve a climate neutral world by mid-century. The Paris Agreement is a landmark in the multilateral climate change process because, for the first time, a binding agreement brings all nations into a common cause to undertake ambitious efforts to combat climate change and adapt to its effects.

At the end of 2019, the EU adopted its ambitious **European Green Deal** and has started its implementation aiming to achieve carbon neutrality till 2050.

Reaching this target will require action by all sectors of the EU economy, including:

- A roadmap for a sustainable EU economy: solutions for climate-related and environmental challenges in all policy fields.
- Europe is to become climate-neutral by 2050, requiring a complete conversion of energy supply, industry, transport, and agriculture.
- A new growth strategy for the EU: transformation into a modern, resource-efficient, and competitive economy.
- By 2050 there should be no net greenhouse gas emissions; and economic growth is to be decoupled from the consumption of resources.

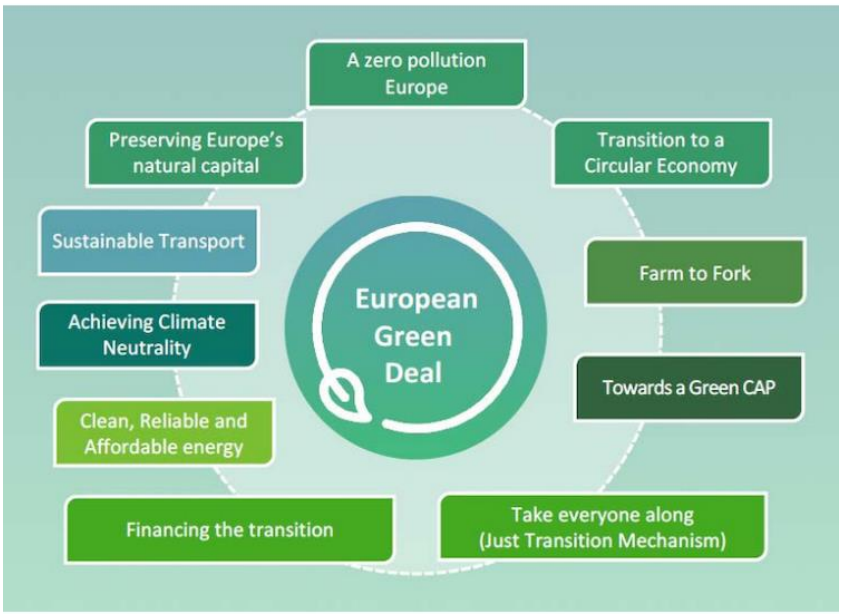
The EU Green Deal provides a roadmap on how to move to a clean, circular economy and adapt to climate change, revert biodiversity loss and cut pollution. It outlines investments needed and financing tools available and explains how to ensure a just and inclusive transition to help those that are most affected by the move towards the green economy. The Green Deal covers all sectors of the economy, notably transport, energy, agriculture, buildings, and industries such as steel, cement, ICT, textiles and chemicals.

The EU Green Deal and its goal of making Europe climate-neutral by 2050 - among other things by developing sustainable industry and sustainable transportation - will make short sea shipping more important and meaningful. This goal can only be reached if this form of transport is given higher priority.

To ensure a fair contribution from the maritime sector to the effort to decarbonize our economy, the Commission proposes to extend carbon pricing to this sector. The Commission will also set targets for major ports to serve vessels with onshore power, reducing the use of polluting fuels that also harm local air quality. First climate action initiatives under the Green Deal include:

- European Climate Law to enshrine the 2050 climate-neutrality objective into EU law;
- European Climate Pact to engage citizens and all parts of society in climate action;
- 2030 Climate Target Plan to further reduce net greenhouse gas emissions by at least 55% by 2030;
- New EU Strategy on Climate Adaptation to make Europe a climate-resilient society by 2050, fully adapted to the unavoidable impacts of climate change.

Figure 5: The European Green Deal



Sources: European Commission website

Following the Green Deal, in 2020, the European Commission presented its "**Sustainable and Smart Mobility Strategy"** together with an Action Plan of 82 initiatives that will guide the work up to 2024. **This strategy lays the foundation for how the EU transport system can achieve its green and digital transformation and become more resilient to future crises.**

As outlined in the European Green Deal, the result will be a 90% cut in emissions by 2050, delivered by a smart, competitive, safe, accessible, and affordable transport system. All transport modes need to become more sustainable, with green alternatives widely available and the right incentives put in place to drive the transition. Concrete milestones will keep the European transport system towards a smart and sustainable future on track:

By 2030:

- at least 30 million zero-emission cars will be in operation on European roads
- 100 European cities will be climate neutral.
- high-speed rail traffic will double across Europe
- scheduled collective travel for journeys under 500 km should be carbon neutral
- automated mobility will be deployed at large scale
- zero-emission marine vessels will be market-ready

By 2035:

- zero-emission large aircraft will be market-ready

By 2050:

- nearly all cars, vans, buses as well as new heavy-duty vehicles will be zero-emission.
- rail freight traffic will double.
- a fully operational, multimodal Trans-European Transport Network (TEN-T) for sustainable and smart transport with high speed connectivity.

Furthermore, following the Sustainable and Smart Mobility Strategy, starting from July 2021, the **European Climate Law** writes into law the goal set out in the European Green Deal for Europe's economy and society to become climate-neutral by 2050. The law also sets the intermediate target of reducing net greenhouse gas emissions by at least 55% by 2030, compared to 1990 levels.

As an intermediate step towards climate neutrality, the **Fit for 55 package** was submitted to the Council in July 2021 and it is being discussed across several policy areas, such as environment, energy, transport and economic and financial affairs.

The Fit for 55 package **is a set of proposals to revise and update EU legislation and to put in place new initiatives with the aim of ensuring that EU policies are in line with the climate goals agreed by the Council and the European Parliament**. Its goal is to reduce net greenhouse gas emissions by at least 55% by 2030. The proposed package aims to bring EU legislation in line with the 2030 goal.

The package of proposals aims at providing a coherent and balanced framework for reaching the EU's climate objectives, including:

- a comprehensive set of changes to the existing EU's emissions trading system (EU ETS) that should result in an overall emission reduction in sectors concerned of **61% by 2030** compared with 2005.
- Prevent the delocalization of the emission.
- Reinforce natural carbon sinks.
- Accelerate the use of renewable resources and promote low and zero emissions mobility.
- Increase the energy efficiency.
- Adapt fiscal policies to make the fully coherent and compatible with the EU Green Deal.

The new proposal delivers on the commitment made in the Communication on the European Green Deal to put forward a comprehensive plan to increase the European Union's target for 2030 towards 55% in a responsible way. It is also in line with the Paris Agreement objective to keep the global temperature increase to well below 2°C and pursue efforts to keep it to 1.5°C. The plan includes:

- A 32% share of renewable energy.
- A 32,5% increase in energy efficiency.

With reference to the **digital transition**, following the 2014 – 2019 Digital Single Market strategy (COM/2015/0192 final), on February 19th 2020, the European Commission released a set of documents that are expected to shape Europe's digital future, including the White Paper on Artificial Intelligence (AI") and the European Strategy for Data and the Digital Strategy.

In particular, the **"Digital Strategy for 2020-2025"** (COM(2020) 67 final, "*Shaping Europe's digital future")* explains how the EU intends to position Europe as a leader in the digital world with respect to data, taking into consideration **how technology will be used to meet climate-neutrality objectives.** Therein, the Commission planned to reach the digital transition using an approach based on the following pillars to ensure that Europe seizes the opportunity and gives its citizens, businesses and governments control over the digital transformation:

- invest in digital skills for all Europeans;
- protect people from cyber threats (hacking, ransomware, identity theft);
- ensure Artificial Intelligence is developed in ways that respect people's rights and earn their trust;
- accelerate the roll-out of ultra-fast broadband throughout the EU;
- expand Europe's super-computing capacity to develop innovative solutions for medicine, transport and the environment;
- strengthen the responsibility of online platforms by proposing a Digital Services Act and clarifying rules for online services;
- make sure that EU rules are fit for the digital economy;
- **use technology to help Europe become climate-neutral by 2050;**
- reduce the digital sector's carbon emissions;
- give citizens more control and protection of their data;
- create a "European health data space" to foster targeted research, diagnosis and treatment;
- fight disinformation online and foster diverse and reliable media content.

Later in 2021, the European Commission presented a vision and avenues for Europe's digital transformation by 2030 (COM(2021) 118 final, "Digital Compass for the EU's digital decade") which is based on four cardinal points:

1. Skills
2. **Secure and sustainable digital infrastructures**
3. Digital transformation of businesses
4. Digitalisation of public services

In **2022**, a **Digital Strategy** has been adopted by the European Commission (C(2022) 4388 final) including a new vision, addressing digital transformation opportunities of a post-pandemic scenario, and supporting the delivery of the EU's strategic priorities by 2030.

The role of the Short Sea Shipping in the framework of the TEN-T Network

The EU's Trans-European Transport Network (TEN-T) policy aims at building an effective, EU-wide and multimodal transport network across the EU. It comprises railways, inland waterways, short sea shipping routes and roads linked to cities, maritime and inland ports, airports and terminals. TEN-T policy does so by identifying the transport infrastructure in Member States that has high added value at the European level and that should be part of the TEN-T network. TEN-T policy also sets requirements that this infrastructure must comply with, including on safety, quality for highly performing transport and alignment with environmental objectives. The TEN-T is an EU-wide network of rail, inland waterways, short-sea shipping routes, and roads. It connects 424 major cities with ports, airports and railway terminals. When the TEN-T is complete, it will cut travel times between these cities.

A revision of the TEN-T regulation has been deemed necessary in order to make the Trans-European Transport Network fit for the future, and to align the development of the TEN-T network to the European Green Deal objectives and the climate targets of the EU Climate Law. Cutting greenhouse gas emissions from the transport sector by 90%, compared with 1990 levels, by 2050, is key to achieving climate-neutrality by the same date.

Following the general strategies outlined by the European Commission, and the ongoing revision of the TEN-T, Coordinator for the Motorways of the Sea Prof. Kurt Bodewig in its revision of the "Motorways of the Sea Detailed Implementation plan" outlined a series of recommendations for the European Maritime Space:

- Green the fleet
- Deploy the infrastructure
- Multi-modality
- Green the ports
- Foster connectivity
- Digital data exchange
- Sea and vessel traffic
- Resilience plans
- Climate adaptation

Following the above-mentioned european policies, all actors within the transport sector will be facing great challenges in the upcoming years in order to properly green and digitalize the sector. This transition will have an enormous cost and will place a heavy burden on all transport operators. This is even more true following the current energy crisis in Europe caused by the war in Ukraine. Among all transport modes, SSS is the one with the greatest potential, not only because it is far more sustainable than road transport, but also because it is far more flexible and modular than any other land-based transport mode, with particular reference to rail.

4. ECO-INCENTIVE SCHEMES AND DIGITAL SOLUTIONS FOR THE DEVELOPMENT OF MULTIMODAL

The main goal of eco-incentives is to trigger relevant decisions in the transport market that could bring the greatest socio-environmental benefits to the EU (globally) and to the MS (locally) on a market basis.

Carbon emissions, air pollution and social costs (congestion, accidents and noise) are the main socio-environmental factors and the ultimate goals of public support towards sustainable mobility, with different means of achievement (e.g. integration, optimization, modal balance, resource efficiency, technology, alternative fuels, etc.). The eco-incentive measures target these factors and allow the market to decide on the means to reduce them.

With the above scope, the eco-incentive measures seek to **complement** other existing instruments in the development framework of sustainable freight transport services, such as:

- **Regulation**, setting the minimum environmental standards for all modes of transport.
- **Charging** (negative incentives), following the *polluter pays* principle.
- **Action grants**, in the form of reimbursement of eligible costs when there is a funding gap amount (i.e. the current CEF approach).
- **State aids**, in compliance with the compatibility rules applicable in the EU market.
- Financial instruments.

According to the financial rules of the EU (Regulation (EU) 2018/1046 of the European Parliament and of the Council of 18 July 2018 on the financial rules applicable to the general budget of the Union), the eco-incentive measures should be conceived as a form of **action grants** not linked to costs, but based on the achievement of actual and demonstrated socio-environmental merits measured through relevant tools.

The eco-incentive measures ultimate target is to speed up transition towards sustainable patterns in freight mobility. The aim is to reward actual socio-environmental merits on a rolling basis, not to compensate for the funding gap amount of green investments (which in the long run might be difficult to demonstrate for certain actions, even if they bring great socio-environmental benefits), or to compensate for the initial losses in the launching or upgrading of new services (i.e. start-up aids).

By way of illustration, **regulatory measures** have proved to be the right approach when the market is ready for the uptake of binding environmental standards. The implementation of the EURO standard on heavy goods vehicle (HGV) fleets or the next cap for sulfur content in marine fuels by 2020 are examples of successful and accepted (though challenging) regulatory measures. However, the way regulatory measures are used depends on the mode of transport. As an example, given the intrinsically global character of the maritime transport the EU has to regulate for this particular mode at the pace of the International Maritime Organization (IMO), which is not the case for the inland modes.

Positive incentives, action grants, in the form of reimbursement of eligible costs, such as the Italian **Ecobonus, Ferrobonus and Marebonus**, have proved to be a good approach as well when there is a funding gap amount to compensate, such as in infrastructure investments, facilities or pilot actions (e.g. on experimental technologies or innovative solutions, also in freight transport services). This is the approach in the current Connecting Europe Facility Program, where eligible costs are restricted to certain actions through pre-established criteria with reference to sector-specific requirements.

Moreover, SSS services are usually part of a larger combined transport, rather than a simple origin destination trip that ends with the arrival in port. For this reason, all incentives developed should take intermodal transport in consideration, with particular reference to rail transport.

In a context of very **ambitious challenges** in freight mobility for the coming years with regards to the environmental and social impacts of transport, **the eco-incentive measures are proposed as a new and complementary instrument to stimulate and accelerate the market uptake on those actions that could make the greatest contribution to reducing external costs.**

In addition, setting the achievement of actual and demonstrated socio-environmental merits at the forefront of the eco-incentive measures allows for a common approach which is transferable across the EU territory, regardless the EU region or mode of transport. Indeed, if conveniently measured and monetized with commonly accepted references, carbon emissions, air pollution and social costs should be horizontal factors to any mode of transport beyond specific sectorial or regional considerations.

It is important to consider the digital transition as well, since incentives in this field will trigger decisions that have the potential of increasing the efficiency and competitiveness of the environmental solutions implemented and of the overall transport sector.

A survey performed by the ESN in the framework of the webinar “Digitalization and environmental sustainability as drivers in the change of SSS” underlined the following digital solutions currently in use in ports of the ESN countries that boost the efficiency of SSS:

- **Drones**: Drones are robots which collect data and can be aircrafts or aquatic drones, remotely controlled or completely autonomous. In the context of the shipping industry, drones can have multiple applications: deployment at incidents, water pollution and firefighting, surveillance and inspections, monitoring of port operations and security, damage control, inspections of terminal installations. They can be used in the entire port area especially in case of operations which are dangerous for operators and operations that need to be performed faster or remotely.
- **Blockchain**: A blockchain is a shared and immutable ledger that facilitates the process of recording transactions and monitoring assets in a business network. When a transaction occurs, it is recorded as a “block” of data and each block is linked to the previous one. After this process the two transactions are blocked together in an irreversible chain: the blockchain. This technology is becoming increasingly useful in creating digital platforms for sharing information in the port industry more efficiently and with a higher security level.
- **Digital Twin**: A Digital Twin is the digital representation of a physical object or system made possible by IoT (Internet of Things) technologies which allow to collect different kind of data. This technology has great potential since it is flexible and can serve different purposes. Sensors can measure the location of an objects in the port area, but they can

also collect data on weather conditions such as wind, temperatures or the mooring/unmooring of a ship. Real-time monitoring is probably the primary functionality this technology makes available. A digital Twin allows simulations to be run both to improve efficiency and to predict events to optimize port management and safety.

Within the national Recovery and Resilience Plans, different EU countries have adopted various kinds of incentive schemes towards Short Sea Shipping and the maritime sector and the opportunities of those incentive schemes are increasing along with the increasing environmental and digitalization challenges. In this context, Spain is currently adopting an adapted version of the incentive scheme proposed in the framework of the Med Atlantic Ecobonus project and Italy is also mobilizing funding for SSS.

Following the Fit for 55 package and the Green Deal, the demands on shipowners for the decarbonization of the maritime sector are increasingly costly and may change the market in ways we cannot foresee right now. In the case of ports, onshore power supply such as cold ironing is of great importance since it reduces significantly the emissions of vessels in ports. Unfortunately, an enormous investment is required for those environmental measures which cannot be sustained by the private or public sectors alone. The only certainty is that there is now a clear need to incentivize demand, to promote multimodal solutions within the logistic chain based on maritime transport and to harmonize environmental sustainability issues with the concrete needs of the sector to avoid losing competitivity and to be protected from inflation.

In this context of uncertainty, it is important to reassure the market defining clearly how negative measures, such as ETS (Emissions Trade System), will collaborate with the positive ones, such as eco-incentive schemes, reducing the cost for SSS and ports, which are also included in new funding schemes. In particular it will be necessary to consider the negative impact of the ETS on the SSS and motorways of the sea sectors, by calibrating the timing and scope of its enforcement.

All schemes have proven that the modal shift is a success story, as it has reduced the economic, environmental and social cost and has a key role in favoring the social and economic development for the local communities served by the maritime links.

Eco incentive schemes play an important role in supporting new investments, provided that the criteria of those schemes do not lead to alteration of the market, if focused on demand. The schemes should be designed and implemented with a view to incentivize sustainable intermodal transport, leading to supporting new investments for technologies that can upgrade maritime services.

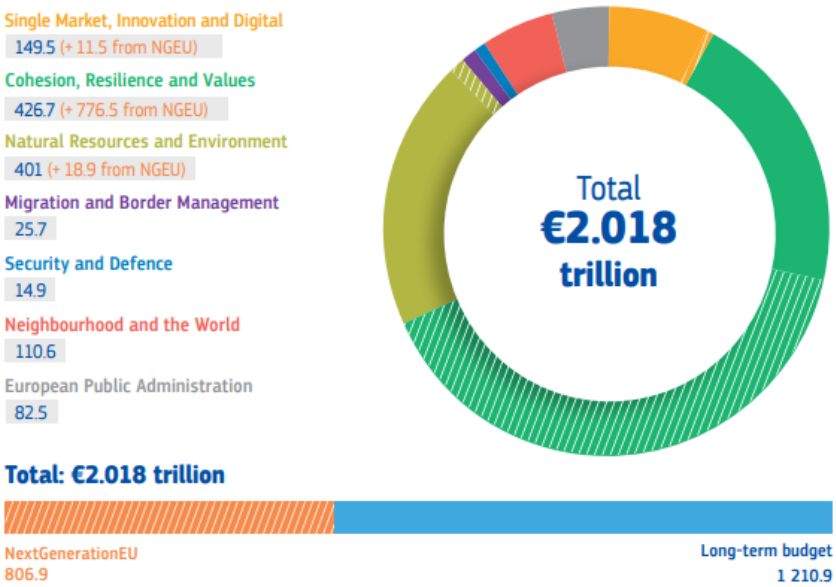
5. THE EUROPEAN FINANCING OPPORTUNITIES

To support the transition of countries most dependent on carbon-intensive economies, the Green Deal requires a huge investment, which we will transform into investment opportunities.

The Multiannual Financial Framework for 2021-2027 and Next Generation EU will be a great opportunity to create a wave of green investments.

In 2020, the European Union provided an unprecedented response to the coronavirus crisis that hit Europe and the world. At its heart is a stimulus package worth EUR 2.018 trillion in current prices (EUR 1.8 trillion in 2018 prices). It consists of the EU's long-term budget for 2021 to 2027 of EUR 1.211 trillion (EUR 1.074 trillion in 2018 prices), topped up by EUR 806.9 billion (EUR 750 billion in 2018 prices) through NextGenerationEU, a temporary instrument to power the recovery.

Figure 6: NextGeneration EU and the EU Long-term budget



Sources: European Commission website

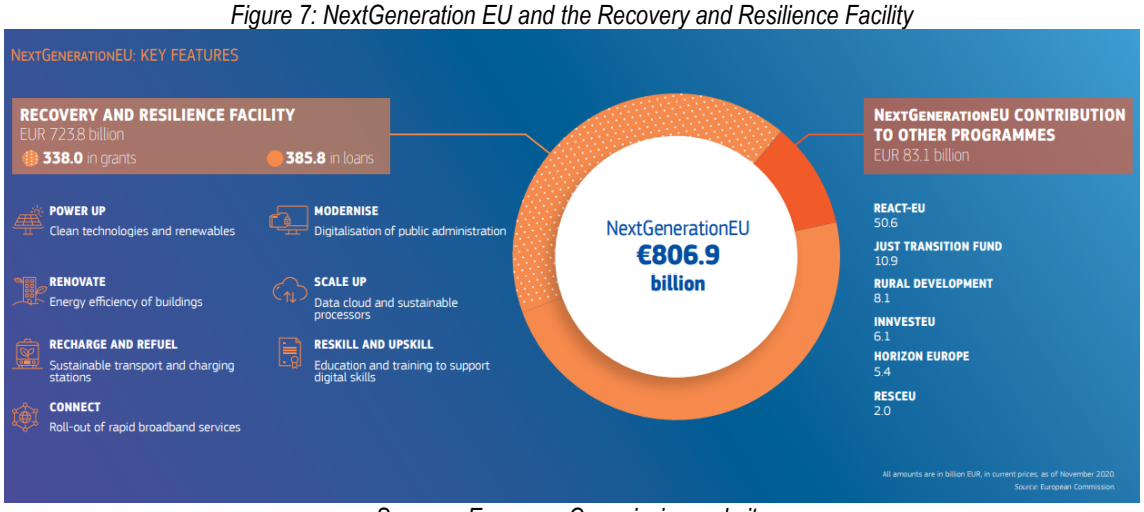
With a budget of EUR 806.9 billion, **NextGenerationEU** will help repair the immediate economic and social damage caused by the coronavirus pandemic and make the EU fit for the future. The instrument will help build a post-COVID-19 EU that is greener, more digital, more resilient and better fit for the current and forthcoming challenges. The centerpiece of NextGenerationEU is the Recovery and Resilience Facility – an instrument for providing grants and loans to support reforms and investments in the EU Member States at a total value of EUR 723.8 billion.

Part of the funds – EUR 338.0 billion – will be provided in form of grants. The remainder – EUR 385.8 billion – will be used to provide loans from the EU to individual Member States on favourable conditions, which will be repaid by those Member States. The funds under the Recovery and Resilience Facility are distributed according to national recovery and resilience plans elaborated

by each Member State, in cooperation with the European Commission, and in line with an agreed allocation key. Those plans must respect the following conditions:

- **At least 37% of the budget of the national plans must be destined to reaching the objective of climate neutrality by 2050 and of reduction of climate emissions by 55% within 2030 as compared to the 1990 levels.**
- At least 30% must be destined to the digital transition.
- 70% of the budget must be committed between 2021 and 2022. The remaining 30% must be committed within 2023.

Figure 7: NextGeneration EU and the Recovery and Resilience Facility



Sources: European Commission website

More than 50 % of the long-term budget and NextGenerationEU will go to new priorities. It will be spent on:

- research and innovation, via Horizon Europe;
- **fair climate and digital transitions, via the Just Transition Fund and the digital Europe programme;**
- preparedness, recovery and resilience, via the Recovery and Resilience Facility, the EU's Civil Protection Mechanism (rescEU), and the health programme, EU4Health.

Moreover, 30% of the long-term budget and NextGenerationEU will be spent on fighting climate change – the highest share ever, from the largest EU budget ever. These funds are part of a major investment plan that the EU will put in place to green the economy. It will combine EU and national public funds, and public and private investments to support the EU on its path to climate neutrality by 2050.

Furthermore, 20% of the Recovery and Resilience Facility funds will be invested in the EU's digital transformation. These funds will help the EU invest more in supercomputing, artificial intelligence, cybersecurity, advanced digital skills and the wider use of digital technologies across the economy and society.

SSS will have a strong role in reaching the objectives of the EU Green Deal for the EU to become the first climate neutral continent by 2050 and the new EU goal for 2030 reducing greenhouse gas emissions by at least 55 percent compared to 1990 levels. **In order for the SSS sector to complete its green and digital transition an adequate financing will be necessary to support investments in the alternative fuels and in IT technologies.**

6. CHALLENGES AND OPPORTUNITIES TOWARDS 2027

As outlined in the European Green Deal, the result of Europe's environmental policies will be a 90% cut in emissions by 2050, delivered by a smart, competitive, safe, accessible and affordable transport system. All transport modes need to become more sustainable, with green alternatives widely available and the right incentives put in place to drive the green and digital transition.

At the same time, **the ongoing TEN-T revision** will reinforce the governance and monitoring instruments in place to ensure on-time network completion and exploit synergies between infrastructure planning and transport operations. This is particularly important since **SSS is part of the TEN-T** and **Motorways of the Sea**, now becoming part of the wider concept of **European Maritime Space,** is a **horizontal priority** of the European Commission.

The next decades will shape the future of Transport and Mobility of both people and goods and SSS will have a crucial role in this process.

At the same time, **the digital transition is becoming increasingly important for all sectors and transport in particular.**

Digital technology and infrastructure have a critical role in our private lives and business environments. We rely on them to communicate, work, advance science and answer current environmental problems. At the same time, the COVID-19 pandemic highlighted not only how much we rely on our technology to be available to us, but also how important it is for Europe not to be dependent on systems and solutions coming from other regions of the world. Paving the way for achieving this goal is the EU digital programme, which will have a relevant impact on the transport sector and on SSS. On the other hand, the pandemic highlighted the weaknesses of European supply chains and their excessive dependence on physically distant countries. Therefore, a process of regionalization of production is foreseeable, especially towards the countries on the southern shore of the Mediterranean, which will increase and strengthen the demand for SSS.

Moreover, the current geopolitical crisis in Ukraine has demonstrated that the EU needs reliable energy sources and a flexible and modular transport system. In order to achieve such system, it will be necessary to rely much more on seaborne transport rather than land transport, which is by definition more rigid.

Considering the above, all Member States are implementing sectorial policies through their national RRF plans and other EU funding programmes such as CEF, Horizon Europe and Interreg in order to face the climate and digital challenges, reaching the goals of Carbon Neutrality by 2050 and the intermediate goals of 2030 as indicated by the Green Deal and enshrined in the EU climate law.

Since short sea shipping will have a crucial role in reaching the environmental targets set by the Green Deal, with reference to the digital and environmental transition of SSS and in the context of the geopolitical and pandemic crises, **the ESN proposes the following recommendations:**

1. **Given the importance of promoting SSS, the role of the ESN should be reinforced with additional funding and a dedicated budget.**
2. **In order for the SSS sector to complete its green and digital transition an adequate financing will be needed, as illustrated in the Motorways of the Sea Detailed Implementation Plan. Moreover, this financing should enable an economically sustainable transition without allowing the sector to lose competitivity and without inflationary pushes. In other words, the green and digital transition must be economically viable for all transport operators.**
3. **In order to have an economically sustainable green transition it will be necessary to incentivize transport demand for the use of SSS.**
4. **It is important to invest in combined transport, with particular reference to dedicated maritime connections, which are more flexible and modular as compared to their land counterparts.**
5. **The transport sector needs a reliable and resilient plan for the supply of energy, as demonstrated by the recent geopolitical crisis.**
6. **It is essential to cooperate between Member States and with third countries for the promotion of SSS. The entity in charge of said promotion could be the ESN.**
7. **The ESN contributes to the sharing knowledge in order to make transport solutions more sustainable and competitive, creating valuable meeting for exchanging information between the industry and the market, involving transport operators, shipowners, shipping lines, ports, and cargo owners and contributing to training of new professional figures.**