



Clean Transport at Sea

Setting a Course for European Leadership

European Political
Strategy Centre

As the EU strives to move towards a climate-neutral economy that acts in harmony with the environment, maritime transport, like other transport modes and economic sectors, is faced with the increasingly urgent challenge of playing its part in this transition.

While it is important to recognise that shipping is part of the problem in tackling climate change and halting the degradation of the world's oceans, it must not be forgotten that it can also very much be part of the solution, especially if it continues with progress made in past decades – as well as under the Juncker Commission – to become greener and more efficient.

As such, the EU must look to strengthen this strategic sector, so as to keep pace with competitors and ensure its resilience by making it fit for the digital age and setting out how it can continue to guarantee sustainable growth and employment opportunities for Europeans.

A key asset, but challenges abound

The maritime transport sector is an essential vector for European trade and a driver of economic growth across the internal market. Yet, similarly to other industrial sectors, it faces major changes ahead: from decarbonisation and digitalisation to intensified global competition and new security threats. Some of its biggest challenges stem from the inside, with European markets still largely fragmented and a lack of integration in wider multimodal logistics networks.

No escaping the clean-up drive

Despite much progress, maritime transport is still far from climate neutrality or being in harmony with the environment. Sometimes perceived as having 'side-stepped' key measures aimed at cutting harmful emissions, the sector is today the focus of global and EU regulatory scrutiny. The recent proposal by the European Commission President-elect to integrate maritime into the European Emission Trading System can act as a strong incentive to decarbonise. But achieving climate-neutrality by 2050 will also require large-scale investments in research and infrastructure.

Competitiveness at play

Given the importance of maritime transport, both for its economy and achieving its sustainability goals, Europe needs to guarantee the sector's long-term resilience as global competition intensifies. This means seizing opportunities to boost its competitiveness at home – namely by being a frontrunner on low-carbon technologies, embracing digitalisation and tightening its internal market – but also taking action to address an all-too-often unlevel global playing field and shape global rules.

A balanced and holistic approach

Maritime transport is at the intersection of many policy areas, encompassing a broad range of actors with different interests, complex interconnections, and split incentives. A partial approach to the sector simply cannot achieve the desired results. Only a holistic, 'whole-of-government' approach, based on clear and coherent long-term political goals, and combining the full toolset at the EU's disposal, will ensure a successful transformation into a sector that is clean, fit for the digital age, and works in the interest of all Europeans.

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A strategic asset facing winds of change

Without maritime transport, trade as we know it would be impossible. Shipping is, by far, the most cost-effective way to transport goods and raw materials around the globe in large quantities.¹ This explains why some **75% of the EU's external trade and 36% of intra-EU trade is seaborne**² – making maritime transport a strategic and vital lifeline for the world's largest trading block.

With more than 1,200 commercial seaports located in 23 Member States, **Europe has been an uncontested maritime leader for centuries** – since the high times of Portuguese navigation and Dutch trade. This extensive **network of ports** not only constitutes the backbone of the EU's global trade network, but it is also **essential to the functioning of its internal market**, for both goods and people, **linking the EU's islands and peripheral areas with the mainland**,³ and contributing to thriving economic hubs.

The European maritime industry is also a key economic sector in its own right, estimated to contribute around 1% to the EU's GDP and support the employment of around 2.1 million people.⁴ That includes shipping and port services, but also shipbuilding activities, the construction of port infrastructure and other maritime equipment and systems, as well as maintenance and repair services.

In fact, **European firms are maritime technology innovation leaders.** The European maritime technology sector invests on average 9% of its profits from sales into research, development and innovation. This is among the highest rates of investment in research, development and innovation to be found in Europe.⁵ **They currently produce around half of the world's marine equipment each year**,⁶ and **specialise in high-end, complex and technologically-advanced civil and naval ship types and systems** (cruise ships, ferries, offshore vessels and installations, propulsion systems, radars, piloting systems or GPS)⁷, as well as in **advanced 'blue economy' technologies** (such as offshore energies, aquaculture, seabed mining, etc.) – which represent **fast-growing markets of the future**.⁸

At a time when the EU is considering how to define an industrial strategy to strengthen its place in the world economy, **the European maritime industry should clearly be considered as a strategic asset.**

Challenges ahead

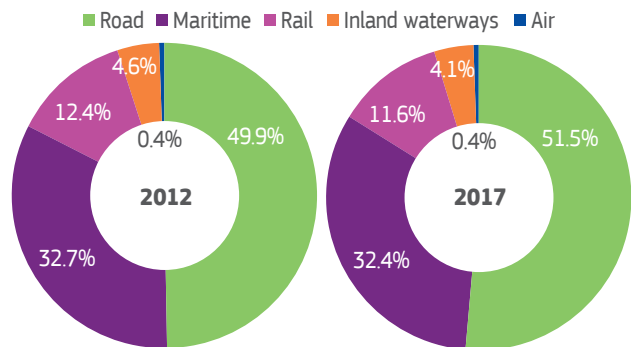
And yet, similarly to other key industrial sectors, the European maritime sector is faced with **major challenges going forward**: from the drive towards **decarbonisation**, which is happening even as **climate change** is already changing the very oceans on which ships sail; to **digitalisation**, which is transforming vessels and ports alike, including how they operate and the skills needed to do so; as well as **fast-growing competition** from other global players, **changing trade patterns**, and **new security threats**.

Some of the sector's biggest challenges also stem from the inside: **fragmented markets** and inefficiencies linked to the lack of a real internal maritime market, as well as a **lack of integration into wider multimodal logistics networks** mean that, despite maritime transport's considerable cost and environmental advantage, road continues to dominate on intra-EU freight trade, benefiting from its inherent advantage as the only real door-to-door transport mode (Figure 1).

Faced with all these winds of change, **the EU needs a comprehensive, forward-looking maritime transport strategy that takes into account the many facets and complexities of the sector.**

Figure 1. Road still has the upper hand over waterborne

Modal split of freight transport (% share in tonne-kilometres), EU 28



Source: Eurostat

The green push

Maritime transport's environmental record has often been cited as one of its greatest assets – largely due to the fact that maritime transport emits far fewer CO2 emissions *per tonne transported* than road or air transport.

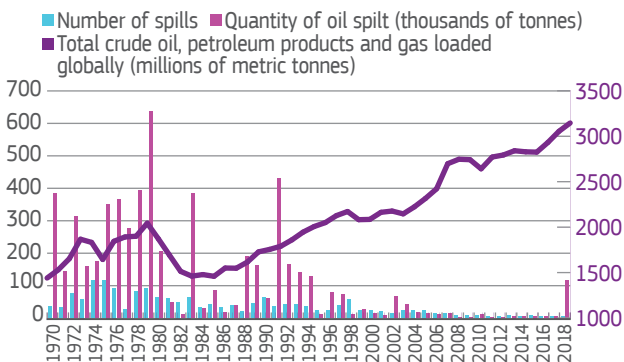
Yet, its **overall ecological footprint and impact on the world's oceans remain significant and wide-ranging**, despite progress recorded in past decades.

Historically, the maritime sector has been a major source of **plastic pollution**, due to a long-established habit of dumping waste at sea. The sector was forced to clean up its act significantly since the conclusion of an **International Convention for the Prevention of Pollution from Ships, which introduced a complete ban on the dumping of plastics into the ocean back in 1988**. As a result, most sources of plastic pollution are today land-based (around 80%).⁹ Nonetheless, fishing activities are responsible for much of the remainder, as many of these smaller ships are not covered by the Convention. At EU level, additional measures were recently adopted to limit marine litter from all ships and ensure proper collection and sorting of waste.¹⁰ Yet, enforcement remains an issue, with **discharge violations still occurring and some flag states less prone to take action against offenders**.¹¹

Similarly, the devastating ‘Erika’ **oil spill** that occurred in 1999, polluting almost 400 km of French coastline and causing unprecedented damage to the EU marine environment, forced the EU to take legislative action aimed at tightening maritime safety and averting future catastrophes. Among others, riskier single-hull tankers were banned, controls in ports were stepped up, and a European maritime safety agency was established. As a result of these measures, the number and scale of oil spills have declined considerably, even as global seaborne oil trade has increased (Figure 2). Yet, **oil spills continue to represent a non-negligible risk**, as evidenced by the peak in 2018, which was caused by a collision between a Panamanian-flagged, Iranian-owned tanker and a Hong Kong-flagged cargo ship, some 160 nautical miles (300 km) off Shanghai, China.

In addition, **the maritime transport sector is often perceived as having ‘side-stepped’ some of the most important measures taken in recent years to reduce harmful emissions** that contribute to heightened air pollution and global warming.

Figure 2. Oil spills have decreased considerably, but risks remain



Source: International Tanker Owners Pollution Federation, United Nations Conference on Trade and Development

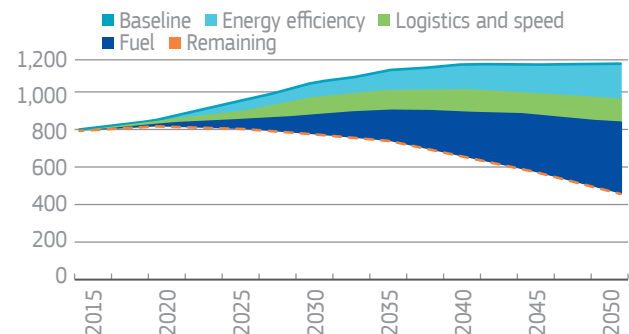
For instance, **similarly to aviation, maritime fuel continues to go largely untaxed**. But, contrary to air transport, **shipping is not covered by the EU’s emissions trading scheme**. And this despite the fact that, altogether, **international shipping accounts for some 2-3% of worldwide CO2 emissions**.¹² That is roughly equivalent to Germany’s output, the world’s sixth largest CO2 emitter.¹³ The International Maritime Organization further estimates that these emissions could rise by 50-250% by 2050 if no action is taken to limit them (Figure 3).¹⁴

What is more, while road transport has been subjected to strict regulations with regard to the sulphur content of fuel and emissions of nitrogen oxides (NOx), particulate matter (PM) and other pollutants, the shipping sector was, until recently, given a free reign to continue using high-sulphur fuels. As a result, it currently produces some **13% of the world’s sulphur emissions and 15% of nitrogen oxides**,¹⁵ generating fine particles that **contribute to air pollution and cause hundreds of thousands of premature deaths worldwide**.¹⁶ Coastal cities are particularly affected as the cruise industry, which relies heavily on highly fuel-intensive ‘mega-vessels’, grows in popularity (Figure 4).¹⁷

These emissions are also a major cause of **losses in marine biodiversity and the degradation of the ocean ecosystem**.¹⁸ A recent report by the Intergovernmental Panel on Climate Change (IPCC)¹⁹ draws a very pessimistic view of the state of the world’s oceans: Without drastic and speedy action, these are likely to continue warming and acidifying, contributing to more frequent heatwaves and sea level rises that would have severe impacts not just on marine life, but on broader coastal areas, including ports and economic operations.²⁰

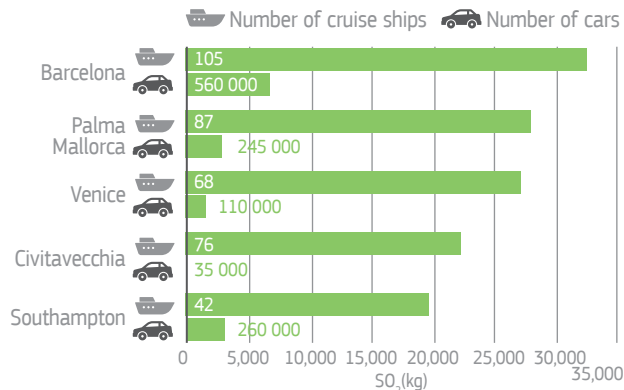
Figure 3. Without action, maritime’s CO2 emissions risk steep rise

Baseline vs planned emissions pathway 2015-50 for international shipping under new IMO rules (MtCO2/year)



Source: DNV GL Energy Transition Outlook 2018

Figure 4. Cruise ships docking in Barcelona emit 5 times more sulphur than the city's 560,000 cars every year



Source: [Transport & Environment](#), 2019

Mounting political and regulatory pressure

Amid growing global pressure to address climate change, air pollution and the degradation of the world's oceans, regulatory attention is today increasingly being directed towards the shipping sector.

After years of negotiations, **the International Maritime Organization clinched a global deal capping the sulphur content of maritime fuels to no more than 0.50%** (rather than the current limit of 3.50%), as of **1 January 2020**.²¹ In April 2018, **it also adopted the first-ever climate change strategy for shipping**, setting the goal of **halving CO₂ emissions from international shipping by 2050**, compared to 2008 levels,²² through a mix of mitigation measures, including energy efficiency, logistics, speed and the large-scale development and use of carbon-neutral fuels.

The EU and Member States played a key role in both these negotiations, pushing for a comprehensive, global deal that would put all countries on an equal footing.

In addition, the President-elect of the European Commission Ursula von der Leyen has made clear that the EU is ready to raise the level of ambition even further. Indeed, every transport mode will have to play their part if the EU is to achieve its ambitious target of **climate neutrality by 2050**.²³ That is why, in her political guidelines, she has proposed **including maritime transport under the EU's Emissions Trading System**.²⁴

Operationalisation remains a sticking point

Complying with both the cap on sulphur emissions and the longer-term ambition on greenhouse gas emissions will present a significant challenge for the shipping sector, with potentially wide-ranging implications in terms of costs, crews and safety.

Even if the necessary technologies and alternative fuels were readily available already today – and some of them are – full climate neutrality by 2050 would nevertheless be a race against the clock, taking into account the fact that the average lifetime of a modern ship is 25-30 years. Not to mention that it is not only vessels that will have to ready themselves for the change (either through fleet renewal, or the retrofitting of engines and other vessel transformations), but also ports, oil terminals and refineries.²⁵

Deploying zero-emission vessels is more feasible in the shorter term for short-sea journeys. Fully electric systems are, for example, already being developed for short-sea ships under the Horizon 2020-funded 'E-ferry' project.²⁶ And the Norwegian ferry sector plans to phase in 50 battery-electric ferries over the next few years.²⁷ However, even on short-sea journeys, full electrification will remain a challenge given that it will also require ports to be equipped with charging facilities. And, in the context of longer, deep-sea journeys or leisure travel, which are most often carried out by very large vessels requiring much higher-density power sources, the obstacles to implementation are far more imposing.

Among the options available other than electrical, technology for liquefied natural gas (LNG) is already being used by certain ships. However, it does not have the same potential to reduce greenhouse gas emissions as other alternative fuels, notably due to the release of methane, so should only be considered as a transition towards cleaner alternatives.²⁸ Further alternatives being explored include **renewable hydrogen, ammonia and derived synthetic fuels, or biofuels. All have the potential to significantly reduce greenhouse gas emissions (Figure 5).**²⁹ **Yet, not all are commercially available**, while some also carry risks in terms of safety, toxicity or flammability.

Hence, achieving the EU objective of climate neutrality by 2050³⁰ still requires unparalleled innovations in marine fuels, as well as propulsion and navigation technologies, shipbuilding processes and port and multimodal infrastructures. And **innovation alone will not suffice. Major investments will also be needed for deployment.**

Matching regulation with investment

The European Commission President-elect’s proposal to extend the EU Emissions Trading System to cover maritime transport³¹ can provide a strong incentive to reduce – and eventually reverse – the price differential between conventional and sustainable fuels, giving a strong market signal in favour of decarbonisation³² and encouraging the take-up of carbon-neutral technologies on a large scale.

However, in the absence of feasible, commercially available and relatively affordable climate-friendly alternatives, there is a risk that the Emissions Trading System remains limited to a carbon offsetting scheme – i.e. with shippers paying for the right to emit, rather than decarbonising. The current trend towards ‘slow steaming’ is particularly revealing in this respect. Indeed, by reducing its speed by just 10%, a ship can decrease greenhouse gas emissions by as much as 27%,³³ without even having to change fuels or vessels.³⁴

Therefore, in addition to providing clear and coherent long-term policy and regulatory signals, the EU must recognise the **need for supporting measures to accelerate the shift away from conventional fuels and incentivise a rapid transition to climate – and environmental – neutrality.**

As such, the fact that the Emissions Trading System will generate revenues presents a real opportunity. Indeed, these can be reinvested – e.g. through the EU’s Innovation Fund³⁵ – in research and innovation activities aimed at stimulating the development of much-needed climate-neutral innovations. The Emissions Trading System can thus be **a key component of a policy package that supports the rapid development and deployment of innovative technologies.**

But this should not be a substitute for funding for maritime research and innovation under Horizon 2020, which, at €350 million, is relatively limited taking into account the challenges ahead. **This investment must be even more ambitious under the EU’s Horizon Europe Research and Innovation Programme for 2021-2027.** Furthermore, the next Connecting Europe Facility (the section of the EU’s Multiannual Financial Framework dedicated to transport), and the **Sustainable Europe Investment Plan** proposed by President-elect Ursula von der Leyen³⁶ will need to support deployment actions.

Because there are no ‘one-size-fits-all’ solutions that can match all ship types, trades and geographies, and given the urgency of finding solutions, **pilot projects in the short-sea shipping sector** could be used to assess the potential of emerging technologies. These could be carried out in **integrated test zones**, enabling **experimentation with low-carbon and/or automated solutions, as well as with new regulations.** Testing these out first on shorter routes could enable technological breakthroughs that could later be applied to longer, deep-sea shipping travel.³⁷

The EU and Member State governments should also help to **steer markets towards alternative fuels by imposing clear criteria in public tenders.** Scaling up the production and distribution of alternative fuels could be a key component in improving their commercial viability. Finally, the EU should investigate other regulatory or soft measures to **incentivise green measures in ports**, such as ships switching to shore electric power when at dock, rather than their own fuel-powered generators.

Figure 5. Technological advances are still needed to achieve full decarbonisation

Performance of alternative marine fuels to date

	Biodiesel	LNG	LPG	Methanol	Ammonia	Hydrogen	Full electrical
GHG	★★★★★	★★☆☆☆	★★☆☆☆	★★☆☆☆	★★★★★	★★★★★	★★★★★
NOx	★★☆☆☆	★★★★☆	★★★★☆	★★★★☆	★★★☆☆	★★★★★	★★★★★
SOx	★★★★★	★★★★★	★★★★★	★★★★★	★★★☆☆	★★★★★	★★★★★
Commercial readiness	★★★☆☆	★★★★★	★★★★☆	★★★★☆	★★☆☆☆	★☆☆☆☆	★☆☆☆☆
Energy density	★★★★★	★★★★☆	★★★★☆	★★★★☆	★★★☆☆	★★☆☆☆	★☆☆☆☆
Regulation	★★★★★	★★★★★	★★★☆☆	★★★★☆	★★★☆☆	★☆☆☆☆	★★★★☆

Sources: [DNV GL Energy Transition Outlook 2018](#), [DNV GL Comparison of Alternative Marine Fuels](#).

Note: This figure is axed towards deep-sea shipping – potential can be different for short-sea, for example considering commercial readiness for full electrical. Limited data on NOx and SOx emissions from ammonia.



Providing the right signals to achieve the right outcomes

The International Maritime Organization's announced cap on sulphur represents a major breakthrough in shifting away from dirty fuels in shipping.

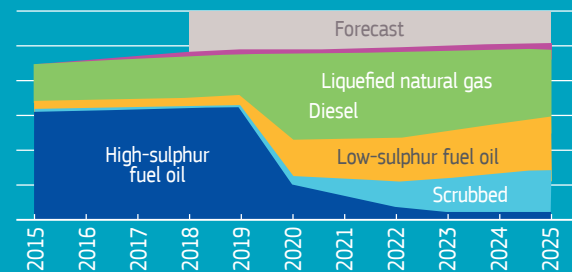
And yet, the **fact that this piece of international regulation focuses solely on reducing sulphur emissions has, in some ways, diverted attention from the broader goal of developing zero-emission technologies** for the maritime sector. Indeed, the sector has focused on meeting the 1 January 2020 target based largely on existing fuels and technologies, namely: either by retrofitting vessels with 'scrubbers', capable of removing emissions from high-sulphur fuels before they are released into the atmosphere; by buying more expensive low-sulphur fuel; or by running on liquefied natural gas (LNG).³⁸

While all of these options entail – sometimes substantial – costs for the sector, none of them would actually enable the sector to achieve climate neutrality going forward, while some even raise new environmental concerns. Switching to LNG not only requires complex engine and vessel transformations, but also global investments in port and bunkering infrastructure changes, despite the fact that its potential to reduce greenhouse gas emissions is lower than other technologies.³⁹ As for installing scrubbers – one of the most cost-effective measures to meet the sulphur cap, especially for larger ships – the ensuing wash-water discharges have been recognised as having the potential to result in localised ecological or human health risks,⁴⁰ with some countries imposing local restrictions.⁴¹

Finally, shifting to low-sulphur content – probably the easiest option, in particular given that most ship owners and operators can simply pass on the costs to their customers – also fails to address the issue of greenhouse gas emissions, although it could indirectly accelerate the search for alternative power sources. Indeed, there are very real concerns regarding the sufficient availability of such fuels, which are also used by trucks, trains, aircraft, farmers and industry. Refiners are still unclear about their ability to make the switch in time, and some estimates foresee a shortage of 1 million barrels a day in the first half of 2020 following the introduction of the sulphur cap,⁴² resulting in big price increases – all the more given the major setback in global oil production and refining capacity following the recent drone attacks on Saudi Arabia's facilities.⁴³

Figure 6. Sulphur cap is likely to boost demand for LNG and low-sulphur fuel in the absence of low-carbon alternatives

Global shipping fuel mix



Source: Goldman Sachs, The Economist

Competitiveness also matters

Although necessary and unavoidable, it is important to acknowledge that raising pressure on maritime transport to clean up its act also holds two inherent risks. First of all, it can **exacerbate the comparative disadvantage that the sector already faces compared to road transport on shorter routes**. Secondly, if action is not followed on the international level, the global nature of maritime transport means that this will inevitably **put EU firms and operators**

at competitive disadvantage with other global players – at least in the short term. Indeed, **looking to the longer term, the EU has a real opportunity to benefit from a first-mover advantage** if it is able to bring to the market feasible, affordable climate-neutral technologies that can be globally scalable.

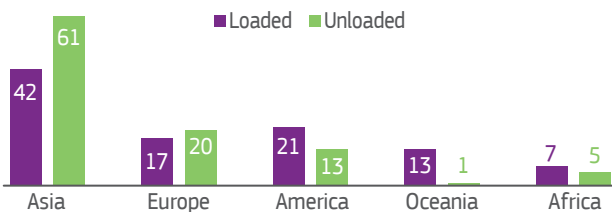
Given the strategic importance of maritime transport, both for the EU's commercial and economic development, but also for achieving EU and global sustainability goals, **Europe needs to guarantee the long-term competitiveness and resilience of its maritime sector**.

EU leadership under pressure

Already today, Europe's long-standing leadership in the maritime sector is coming under pressure. In 2017, 42% of world maritime trade originated in Asia and 61% was destined to the region (Figure 7). The rapid growth of Asia's population and economy could see a further shift towards the East in terms of trading patterns. In addition, while **EU companies still own the largest single share of the world fleet, their share has fallen from 41% in 2009⁴⁴ to 36% in 2018.⁴⁵ The proportion of the world's fleet that sails under one of the EU Member State's flags has seen an even steeper decline, from 33.6% in 1980 to 18.4% in 2018⁴⁶ (Figure 8).** While the choice of flag can be driven by geographical location, switching to a 'flag of convenience' is very easily accomplished, many choose to do so for reasons of lower prices, laxer regulatory requirements, tax advantages, more favourable market access conditions, or greater bureaucratic efficiency.

Figure 7. Asia already dominates global seaborne trade

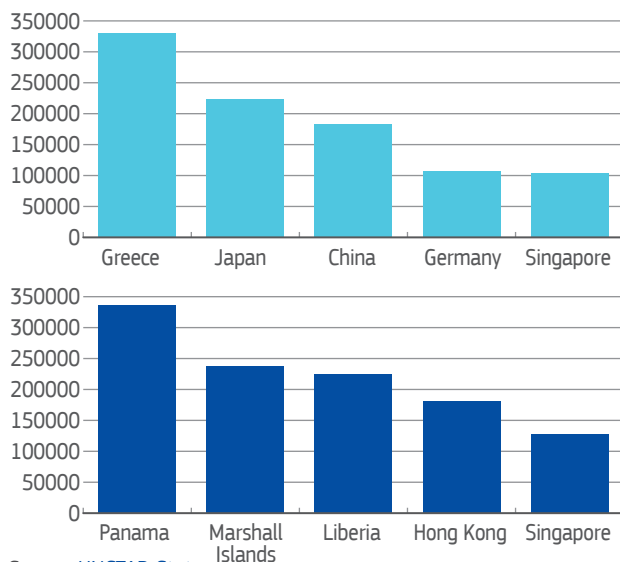
Share of world seaborne trade by region (% of total tonnage), 2017



Source: UNCTAD, [Review of Maritime Transport 2018](#)

Figure 8. Most ship owners prefer flags of convenience

Fleets of top five merchant fleet-owning countries vs top five countries of flag registration, 2018



Source: [UNCTAD Stat](#)

The falling share of the world fleet under EU Member States' flags has implications for both business and government revenues in EU countries. But, more than that, it also reduces the EU's regulatory reach and influence, as **fewer and fewer ships operate under European regulations and standards.**

The EU's share of worldwide shipbuilding production is also in decline. By 2017, over **90% of shipbuilding activity occurred in China, the Republic of Korea and Japan.**⁴⁷ Much of this activity relates to lower-end maritime technologies (e.g. China specialises in dry bulk carriers and general cargo ships, South Korea in oil tankers, container ships and gas carriers, and Japan in chemical tankers and bulk carriers), leaving European shipbuilders 'free' to focus on **more sophisticated, higher added value, vessels and maritime equipment, where Europe remains a global leader for the time being** (Figure 9).

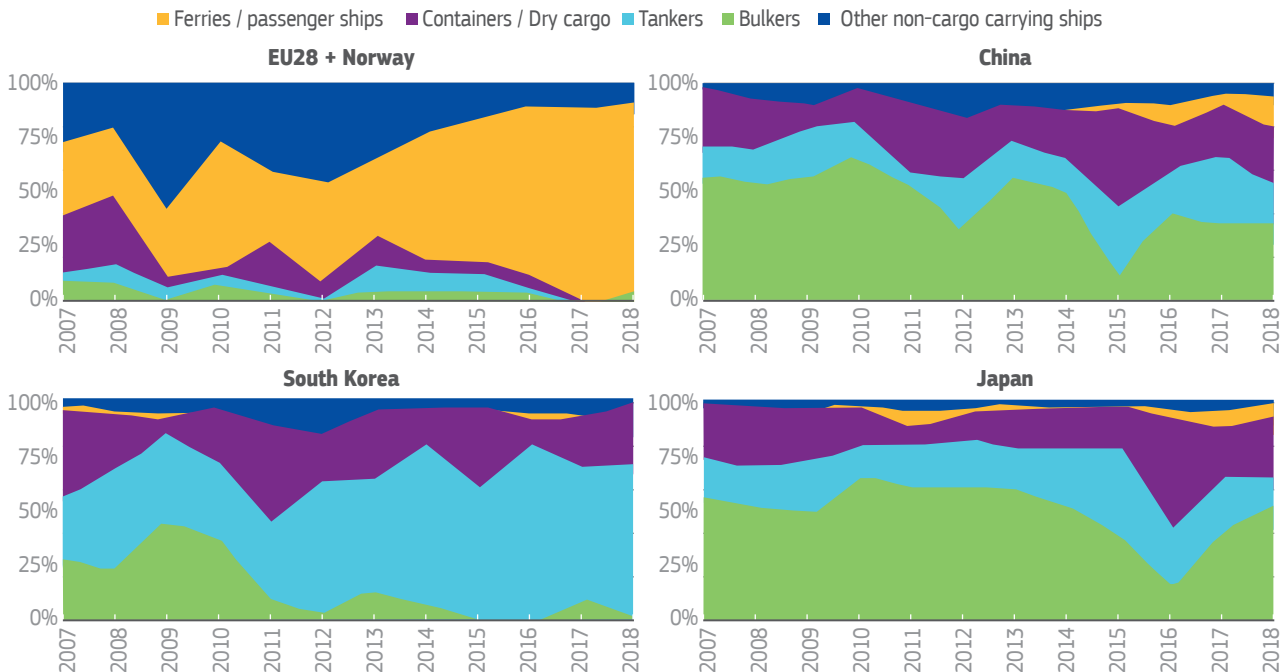
Nonetheless, **the shift of shipbuilding activities to the East has affected Europe's shipyards, forcing many to shut down over the last decades,** as they fail to garner sufficient investments to upgrade and modernise. Looking forward, competition is likely to intensify also in the complex equipment and vessel sectors, as Asian economies gradually move into these fast-growing niche sectors. **In some cases, these competitors continue to benefit from state subsidisation, creating an unlevel playing field for European firms,** given the phase-out of state aid for EU shipyards already in the late 1990s.

China, in particular, has made 'maritime equipment and hi-tech ships' one of its ten priority areas under its 'Made in China 2025' industrial policy, with the goal of supplying 50% of the international market for hi-tech ship design and equipment.⁴⁸ As part of this plan, it recently announced⁴⁹ a merger between its two biggest shipbuilders (China Shipbuilding Industry Company and China State Shipbuilding Corporation) – both of which are state-owned – with a view to creating a giant able to better rival its European, Korean and Japanese competitors.

The large-scale subsidisation that these enterprises benefit from has, already in the past, led to the build-up of significant overcapacities in China, with **excess domestic production dumped on foreign markets.** This was a key contributing factor in the production shift of lower-end vessels and maritime equipment away from Europe and represents a major risk for higher-end production down the road. Furthermore, because these companies seek to operate with domestic supply chains as much as possible, their impact is likely to be felt not just by European shipbuilders, but throughout entire value chains in Europe.

Figure 9. EU still dominates high-end shipbuilding, but China is gradually moving into passenger ships

New orders in million CGT (compensated gross tonnage)



Source: HIS Fairplay, Sea Europe

In addition, as part of its Belt and Road Initiative, **China has also been investing aggressively in maritime port infrastructures around the world, including in Europe.** The multi-billion acquisition, in 2008, of a 35-year lease of Greece's Piraeus Port by the state-owned China Ocean Shipping Company (COSCO) was a flagship project in this respect.⁵⁰ China now also has a foothold in several other major ports in Europe, including the three largest – in Rotterdam, where it owns 35%, in Antwerp, where it holds a 20% stake, and in Hamburg, where it is to build a new terminal.⁵¹ In stark contrast, **Chinese markets remain extremely difficult to access for foreign competitors** due to licensing and localisation requirements.

Competitiveness starts at home

The first step towards making European maritime transport more competitive would be the **creation of a seamless maritime single market**, based on a coherent maritime network that is **fully integrated into the multimodal logistics network.**

Strengthening the EU maritime space will not only make it more competitive compared to other transport modes on shorter, intra-EU routes, but **it will also create the conditions to better promote EU interests globally**, improving its negotiating position to secure free and equal access to international maritime services for EU operators, and reinforce the respect of European standards, especially environmental.

A key component of this relates to the **removal of remaining regulatory and administrative obstacles.** As an example, in stark contrast with intra-EU road transport, shipping within the EU requires a whole array of different administrative formalities, customs declarations at departure and arrival, and other procedures that are costly and take time. For some two million port calls made annually in the EU, roughly 4.6 million hours of reporting are required.⁵²

Digitalisation technologies, such as e-registers, offer significant opportunities for simplification of administrative and customs formalities. The adoption of the European Maritime Single Window environment by the EU, which will fully harmonise reporting processes, should already reduce reporting time by 50% during port calls.⁵³

Digital technologies also hold the promise of improved quality of port planning, by facilitating and accelerating the flow of information between different actors, through big data analytics for port call optimisation, automation, use of drones for monitoring vessels and cargo, etc. **Enhancing port planning and terminal performance** in all market segments is increasingly recognised as critical both for international competitiveness and strategic positioning, as well as for improving safety, and helping to curb the sector's environmental footprint and meeting globally established sustainability benchmarks

and objectives. Ports and their stakeholders, including operators, users and governments, should collaborate to identify and enable key levers for improving port productivity, profitability and operational efficiencies.⁵⁴

The EU should also work with the maritime industry to explore ways to improve or create **advanced financing tools for shipping**, which can be crucial in what is a capital-intensive sector.

In addition, the EU must **support the sector in addressing demands for new skills linked to automation, digitalisation and decarbonisation**. The expectation is that these combined trends will lead to more employment opportunities on shore, easing working conditions and also supporting a shift to greater gender balance in the sector. Today, just 2% of seafarers worldwide are women.⁵⁵

The EU is already working on a four-year blueprint project for the maritime profession, addressing demands for future skills linked to environmental protection, quality and safety standards, technological progress, and unmanned ships, while ensuring continuous upskilling. Since the maritime industry is an important employer in the EU, such a **social agenda** is needed for its workers. Going forward, continued work will be needed to ensure the improvement and respect of seafarers' employment conditions, not just by EU flag bearers but by other flags too.

Levelling the global playing field

In order for its maritime industry to remain competitive, Europe can no longer afford for it to be unduly exposed to pressure by global actors that do not play by the same rules. **Openness must be a two-way street.**

Where necessary, the EU should make use of trade defence instruments to address unfair subsidisation by competitors, as well as of the possible future international procurement instrument to strengthen its position when negotiating access for EU businesses to the public procurement markets of non-EU countries, which are often more restrictive than the EU's market.⁵⁶

The EU should also **continue dialogue with other important maritime states to build alliances on issues of common concern, to solve contentious issues and to promote mutual understanding of private sector needs**. It has already done so through the EU-China maritime transport agreement and high-level transport dialogues with Japan, Norway and the US focusing on maritime. The maritime transport chapter in **free trade agreements** that the EU signs must also continue to be an important tool to secure free and non-discriminatory market access abroad for EU operators.

At the same time, given the inherently global nature of the maritime sector, rules need to be developed, insofar as possible, on a global level, addressing the impact of the maritime sector on the environment – from air pollution and global warming, to security, protection of oceans and the marine environment and sustainable shipping.

The EU needs to take advantage of its current position as a maritime power to shape these rules within the international frameworks.

Continued strong presence of Member States within the International Maritime Organization, combined with EU coordination can help achieve this.

The EU's new goal of integrating maritime transport in to its Emissions Trading System can also send a strong signal to other global players, encouraging more ambitious action within the International Maritime Organization, and levelling the playing field for all. However, in the absence of measures on the international level, it will be crucial to limit discrimination based on ownership or flag state when implementing the EU Emissions Trading System. The best way to do this could be a route-based approach for ships as they enter EU ports.⁵⁷

A comprehensive approach that matches the sector's diversity

In addition to the multitude of challenges it faces, the maritime sector consists of a broad range of industries, sectors and stakeholders with **different interests, complex interconnections, and sometimes 'split incentives'**.

As a simple example of this: when considering the shift towards climate-neutral shipping, ship operators and charterers will tend to focus on options that keep fuel costs to a minimum, while ship owners will tend to focus on solutions that entail lower development, construction and maintenance costs.⁵⁸ In addition, the complex interconnections within the sector can mean intervention in one area has implications in another. Already today, pressure on shippers to lower costs, increase operational efficiencies and improve their environmental footprint, has resulted in a continuous increase in ship sizes across all segments (e.g. tankers, container carriers)⁵⁹ and on all routes. This has considerable knock-on effects in ports, where both infrastructures and services have to adapt to larger vessels and significantly higher 'peak' cargo loads.

Thus, an EU strategy for clean and competitive maritime transport needs to cover all segments of the maritime cluster – R&D; shipbuilding; different types of shipping operations; and the services and infrastructure surrounding them. Its implementation needs to take into account the diversity and complexity of the sector, so as not, for instance, to put short-sea shipping at a disadvantage compared to other transport modes.

It must also be a future-oriented strategy that considers how key structural trends, such as demographic shifts, climate change, digitalisation and new security challenges, will affect the transport sector in decades to come. A **holistic, ‘whole-of government’ approach**,⁶⁰ based on clear and coherent long-term political priorities and combining all relevant policy fields – not just transport, but also in environment, maritime, climate, industry, research and technology, digital, trade, security, health, social or employment affairs – is needed. The power of collaboration can also be useful by involving all actors of the maritime cluster to help decision-makers find solutions, and to find solutions among themselves.

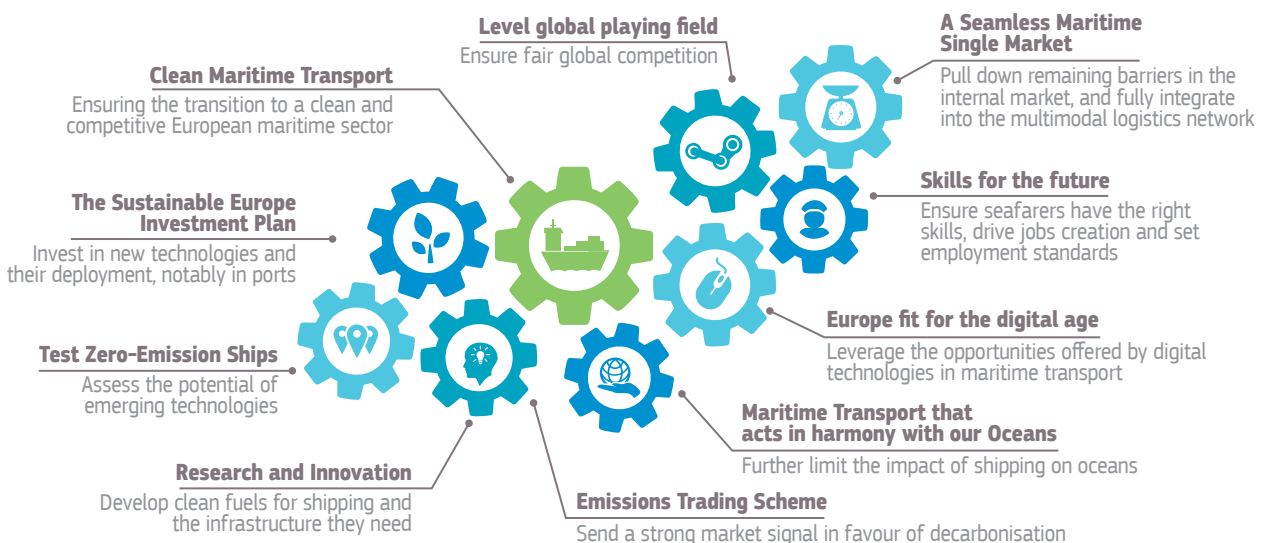
Conclusions

Maritime transport is unique in the key role it plays in transporting goods around the world. But just like many other sectors of the EU economy and industry, it is undergoing major changes and faces the challenge of lowering its emissions while retaining its competitive edge and continuing to work in the interest of Europeans.

Yet, for the EU to keep and extend its lead in the maritime industry, it will have to face up to the challenge of contributing to achieving climate neutrality by 2050. This will entail a systemic change in how ships are fuelled, designed and built, and how they interact with ports. Digitalisation and upskilling EU workers in the maritime sector will also have a role in this transition, while market tools should also be strengthened to ensure fair competition as EU companies make the required efforts to transition to clean maritime transport.

Over the last five years, the European Commission has already proven successful at removing key economic sectors from their silos and leading them through a green transition thanks to a systemic approach: starting with the ‘Clean Energy for all Europeans’ package, the ‘Clean Mobility’ packages –under the strong steer of the European Commissioner for Mobility and Transport Violeta Bulc – and, finally, the ‘Clean Planet for all’ long-term climate strategy. A lot has also already been achieved in maritime transport itself, as exemplified, among others, by the adoption of legislation aimed at embracing digitalisation to simplify administrative procedures, or at reducing waste at sea from ships, as well as its global drive for decarbonisation with a landmark agreement at the international level. These achievements now need to be carried forward as part of a comprehensive, long-term vision for maritime transport that encompasses all the relevant policy fields and tools at the EU’s disposal.

Figure 10. A policy mix for an EU vision for maritime transport



Source: European Political Strategy Centre

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