The Competitiveness of the UK Shipping Industry

A Cebr report for the UK Chamber of Shipping

September 2025

Authorship and acknowledgements

This report has been produced by Cebr, an independent economics and business research consultancy established in 1992. The views expressed herein are those of the authors only and are based upon independent research by them.

The report does not necessarily reflect the views of the UK Chamber of Shipping.

London, September 2025

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Foreword

It is some 10 years since the UK Government launched the UK Maritime Growth Study which described a new plan to grow the maritime industry towards 2050. The shipping industry is one of the most competitive global industries, operating in an extensive and rapidly changing international market. It is essential that the UK proposition remains internationally compelling to sustain the 7% year-on-year growth cycle in Gross Value Added (GVA) achieved since 2010. I am delighted to introduce this report authored by the **Centre for Economic and Business Research** (Cebr) which has developed a new, first of its kind, **Shipping Competitiveness Index**, benchmarking performance across 44 maritime nations representing over 80% of globally owned deadweight tonnage.

The index presents four pillars: **Trade**; **Fleet and Capital**; **Workforce**; and **Regulatory Environment and Governance** to produce a rigorous analysis of the factors influencing maritime success.

Cebr's assessment of the UK shipping industry is that it is steadfast—maintaining a position of **5th amongst competing global maritime nations**, demonstrating resilience in the wake of the change in our relationship with the European Union and the effect of the pandemic. The UK is especially strong in regulation and governance, shipping fleet size, and reassuringly the stability of the UK shipping workforce.

The main levers of future growth in the UK maritime industry are tonnage tax, decarbonisation regulation, training, movement of labour, and the Government's strategy regarding the offshore energy market. This report looks closely at these areas, and they form the thread of our recommendations to the Government and industry, which are:

Consolidating leadership in areas of comparative advantage

- Regulatory governance, high-value maritime services, legal and insurance expertise, and decarbonisation.

Unlocking infrastructure investment

- Remove barriers to port development, address grid connection delays, and streamline planning and consenting regime.
- Strengthen hinterland connectivity and improve logistics performance.

Building green and transition finance

- Position the UK as a global hub for transition finance. This requires bespoke financial instruments—such as green loan guarantees and Contracts-for-Difference—to unlock the private capital needed to modernise and decarbonise the fleet.

A fit-for-purpose workforce policy

- Protect and enhance funding for maritime training.
- Ensure a responsive immigration policy, including short-term visas for maritime professionals, particularly critical for the offshore energy sector.

I commend the report to you and am grateful to Cebr for their expertise in analysing what is a complex and highly nuanced industry. The UK shipping industry is approximately the same size by GVA as the UK automotive manufacturing industry and while it operates mostly outside

the public consciousness, it is the lifeblood of our economy, moves over 90% of trade and has been the greatest “force for good” in maintaining the well-being of the global population.

Rhett Hatcher
CEO, UK Chamber of Shipping

Headline findings

- Amidst growing global competition and intensifying regulatory pressure, **the UK remains one of the world's most competitive nations in shipping,** supported by strengths in regulatory environment, trade openness, and fleet ownership, and retaining its top-five position over the last decade.
- This report provides the first comprehensive, internationally benchmarked assessment of national shipping competitiveness since 2014, revealing how countries are positioned, and repositioning, for success in a rapidly evolving maritime landscape.
- To undertake this assessment, Cebr developed the **Shipping Competitiveness Index,** a first-of-its-kind, internationally benchmarked index of 44 maritime nations, which together represent over 80% of globally owned deadweight tonnage, including most major coastal economies and leading providers of shipping services. The latest rankings are based on data for 2023.
- The index comprises **15 key indicators**, arranged into four pillars of shipping competitiveness:
    - **Trade** – the extent to which countries are integrated into global shipping networks and supported by efficient logistics systems;
    - **Fleet and Capital** – the scale, value, and modernity of a country's owned fleet, alongside supporting commercial and financial infrastructure;
    - **Workforce** – the availability and quality of maritime human capital, including seafarer supply and broader skills readiness; and
    - **Regulatory Environment and Governance** – the institutional conditions shaping maritime operations, including flag performance, market openness, and regulatory quality.
- The top 10 performers are:

1. Singapore
2. Japan
3. China
4. Germany
5. United Kingdom
6. United States
7. Greece
8. Netherlands
9. South Korea
10. Denmark

Key pillar findings and the UK's performance

- **Trade**: The UK ranks 8th, with top ten scores in liner shipping connectivity (10th) and sea transport services exports (10th), but trails slightly in logistics performance (19th) and transport and insurance costs (16th). Singapore, Germany, and the US dominate this pillar, with Singapore having the highest possible scores in sea transport services exports and logistics performance.
- **Fleet and Capital**: The UK performs well (5th overall), reflecting a solid maritime asset base (7th by both owned DWT and fleet value), deep capital markets (joint 1st), and a strong presence of ship management companies (3rd), though with a comparatively slightly older fleet than its peers (13th). Greece leads this pillar overall, ranking 1st in fleet value, deadweight tonnage, and number of ship management firms, with Singapore and China in 2nd and 3rd.
- **Workforce**: The UK ranks 9th, reflecting a relatively robust seafarer supply (9th) while scoring lower for human capital (20th). However, constrained immigration routes remain barriers to labour flexibility. South Korea tops the pillar, driven by a strong seafaring pipeline and human capital, with the United States, Russia, China, and Denmark completing the top five.
- **Regulatory Environment and Governance**: This is the UK's strongest pillar, where it ranks 4th overall. Its position is driven by strong flag performance (joint 1st) as well as low barriers to entry and transparent regulation (joint 1st), which underpin the UK's attractiveness as a shipping centre. However, the country sits outside the top ten for the Worldwide Governance Indicators (15th) and business freedom (17th). The Netherlands ranks 1st overall, followed by Norway and Japan.
- Benchmarking the UK's index performance against Germany and Singapore highlights the UK's advantages in regulatory environment, governance, and workforce, while both peers show stronger results in maritime trade-related metrics and fleet scale. These comparisons reinforce the UK's profile as a legally and institutionally robust shipping centre with a competitive fleet, contrasting with Germany's position as a trade-driven ship-owning nation with a slightly more extensive, albeit older, fleet base, and Singapore's role as a global hub supported by an even larger modern fleet.

Summary of index methodology

- The index draws on 15 quantitative indicators, selected for their conceptual relevance, statistical robustness, and cross-country availability. Each indicator was assigned a weight based on its strategic importance, using a tiered system developed in consultation with the UK Chamber of Shipping. Scores were normalised to a 0–100 scale, with logarithmic transformation applied where necessary to mitigate skewed distributions. Indicators where higher raw values indicate weaker performance (e.g. fleet age or trade restrictions) were inverted before aggregation.
- Country selection was guided by relevance to the global shipping sector and data availability. The scope includes most major coastal economies and leading providers of shipping services. However, certain nations such as the UAE, Panama, Cyprus, Malta,

and Hong Kong were excluded due to data gaps, which limited broader geographic coverage.

Thematic deep dives

Alongside the index, the report explores four areas with strategic implications for UK competitiveness:

Tonnage tax

- The UK's tonnage tax regime offers competitive effective rates and is underpinned by clear rules and a stable fiscal framework. While uptake has historically been limited to a subset of shipping companies, the regime remains an important pillar of the UK's maritime offering. However, the limited number of qualifying berth places continues to constrain wider participation, particularly among smaller operators and newer market entrants.
- A benchmarking exercise using hypothetical company profiles shows significant variation in estimated tax liabilities, with the UK falling near the middle of the sub-sample. Regimes in jurisdictions such as Panama, Singapore and Cyprus offer relatively lower liabilities, while others like Denmark and France are positioned toward the higher end.

Decarbonisation

- The UK has set ambitious targets to decarbonise its maritime sector. However, current progress reveals a gap between strategic intent and operational readiness. Delivery on critical enablers, such as port electrification, alternative fuel infrastructure, and vessel retrofit support, remains limited.
- Moreover, the regulatory environment is becoming increasingly complex. Multiple global (IMO) and regional (UK and EU) decarbonisation regimes create a fragmented regulatory framework and risk placing additional compliance burdens on UK operators, especially those exposed to cross-border routes.

Labour market

- A sufficient supply of active, qualified seafarers is central to long-term shipping competitiveness, not only for crewing ships at sea but also for providing a flow of experienced personnel into shore-based roles, strengthening the wider maritime cluster. The UK produces high-quality officers through its SMarT-supported, employer-sponsored training system, though output could be higher. Factors such as funding caps, uneven employer uptake, and a smaller pool of UK trainee seafarers have constrained growth in domestic seafarer numbers. However, apprenticeships are increasing in number and playing a growing role in seafarer and maritime personnel training.
- Other countries have taken different approaches. The Philippines and China have scaled mass seafarer supply through state-led systems, while Greece and Singapore have built quality-focused regimes aligned with national industrial strategies. The UK's reliance on voluntary employer sponsorship means cadet numbers are currently not fully aligned with fleet size, offshore energy expansion, or net-zero skills demand.

- Immigration policy is also a bottleneck. The absence of a dedicated short-term maritime visa route creates costly administrative hurdles for international crew rotation, particularly in offshore energy and UK–Northern Ireland ferry services, and risks undermining UK competitiveness in offshore logistics.

Offshore energy

- The UK's leadership in offshore wind presents a strategic advantage in the global shift toward low-carbon energy. Yet, this potential remains underleveraged from a shipping perspective. Despite ranking second globally in installed offshore wind capacity, the UK faces shortages in specialised offshore vessels, fragmented innovation support, supply chain constraints, and underdeveloped port infrastructure. These gaps risk increasing reliance on foreign fleets, driving up project delivery costs, and jeopardising the timely achievement of the UK's offshore energy targets. By contrast, countries like Norway and China have aligned maritime, industrial, and energy strategies to scale domestic fleet capacity, port readiness, and exportable green technology.

- The UK's offshore oil and gas production sector is entering a long-term decline, with annual crude oil production expected to fall from 26.3 million tonnes in 2025 to 4.3 million tonnes by 2050, and virtually all output coming from existing fields. The sector is vitally interconnected with offshore renewables, sharing supply chains, engineering expertise, and specialised vessel requirements. Leveraging this overlap, while addressing policy uncertainty that is driving investment overseas and human capital flight from the sector, will be critical to retaining industrial capacity and supporting a managed energy transition.

1 Introduction

1.1 Overview and purpose of the report

Cebr has been commissioned by the UK Chamber of Shipping (UK Chamber) to assess the international competitiveness of the UK shipping industry. For the purposes of this report, a country's shipping industry is defined broadly to include the transport of goods and passengers by sea; the vessels and infrastructure that support these activities; the associated services and workforce; as well as the regulatory and governance frameworks that underpin the functioning of the sector. This report provides a systematic, evidence-based evaluation of how the UK performs relative to its global peers across key dimensions of shipping, and how this position has evolved over the past decade.

To undertake this assessment, Cebr has developed the **Shipping Competitiveness Index**: a composite, multi-dimensional benchmarking tool designed to offer an internationally comparable view of national shipping performance. The index provides a holistic measure and assessment of each constituent country's relative performance, highlighting areas of strength and potential improvement, and offering actionable insights for stakeholders including policymakers, businesses, and researchers.

The index comprises **15 key indicators**, arranged into four pillars of shipping competitiveness:

- **Trade**
- **Fleet and Capital**
- **Workforce**
- **Regulatory Environment and Governance**

It analyses a total of **44 countries**, which together represent over 80% of globally owned deadweight tonnage (DWT),[1] including most major coastal economies and leading providers of shipping services. It also offers a historical perspective, assessing the situation in 2023 alongside that of 2014 to illustrate trends in competitiveness over the past decade amidst a shifting industry landscape.

In addition to the core index, the report includes thematic deep dives into four further dimensions of competitiveness: the **fiscal environment**, particularly tonnage tax regimes, as well as **decarbonisation policy**, **maritime labour market,** and **offshore energy and vessels**. As these areas are less amenable to standardised quantification, the analysis is supported by literature review and qualitative assessment of competitive implications. Where feasible, benchmarking comparisons have been included. For example, in the case of tonnage tax, indicative calculations were conducted to estimate the tax burdens faced by two hypothetical entities of differing size in key shipping jurisdictions.

Building on existing research, notably a 2015 Department for Transport-commissioned study on the maritime competitiveness of the UK maritime sector[2], and a cross-country shipping

[1] UNCTADstat (2025). Merchant fleet by country of beneficial ownership.

[2] Oxera (2015). International competitiveness of the UK maritime sector.

competitiveness index by Lee et al. (2014)[3], this report provides the first up-to-date and comprehensive assessment of shipping competitiveness through a dedicated composite index.

1.2 About the UK Chamber of Shipping

The UK Chamber of Shipping is the trade association for the UK shipping industry, providing a voice for over 200 members of all sizes, sectors and flags, including some of the country's largest cruise, ferry and freight operators.

The UK Chamber works to promote and champion the shipping sector, helping create the best possible environment for the industry to flourish to the benefit of the wider UK.

The Chamber enables the shipping industry to speak with one voice, ensuring decision makers are educated and informed about the positive social, economic and environmental impact of the industry in the UK and the rest of the world.

1.3 Structure of the report

The remainder of the report is structured as follows:

- **Methodology** provides an overview of the methodology employed in constructing the index.
- **Shipping Competitiveness Index** presents the index results and a deep dive into the performance of the UK.
- **Tonnage tax** examines the fiscal regimes of key shipping jurisdictions, including a tonnage tax benchmarking exercise.
- **Decarbonisation** explores decarbonisation policies and technologies, along with their impact on national shipping competitiveness.
- **Labour market** addresses seafarer training systems, as well as immigration and visa policies affecting UK competitiveness.
- **Offshore energy** examines developments in offshore energy and their implications for offshore fleets and competitiveness.
- **Annex A** contains methodological notes on the data sources and statistical treatment of index components.
- **Annex B** contains the results of sensitivity testing of index weights.

[3] Lee, C. B., Wan, J., Shi, W., & Li, K. (2014). A cross-country study of competitiveness of the shipping industry. Transport Policy, 35, 366-376.

2 Methodology

The Shipping Competitiveness Index has been developed to provide a systematic benchmark of national performance across key dimensions relevant to the shipping sector. Drawing on a composite framework of 15 indicators, the index offers a cross-country and longitudinal comparison of competitiveness in shipping, considering not only physical assets and trade integration but also the workforce, regulatory quality, governance, and access to finance. Table 1 presents the individual indicators alongside respective weightings, arranged into four thematic pillars: Trade, Fleet and Capital, Workforce, and Regulatory Environment and Governance.

Table 1: Shipping Competitiveness Index indicators

Pillar	Indicator	Weight	Source
Trade	Sea Transport Services Exports	10%	OECD
	Liner Shipping Connectivity Index (LSCI)	10%	UNCTADstat
	International Transport and Insurance Costs of merchandise trade (ITIC)	6.67%	OECD
	Logistics Performance Index (LPI)	6.67%	World Bank
Fleet and Capital	Fleet value by country of beneficial ownership	10%	Clarksons (accessed through UNCTADstat)
	DWT by country of beneficial ownership	10%	Clarksons (accessed through UNCTADstat)
	Fleet age by flag state	6.67%	Clarksons (accessed through UNCTADstat)
	Number of ship management companies	6.67%	Lloyd's List
	Financial Development Index – Financial Markets Depth	3.33%	IMF
Workforce	Seafarer supply	6.67%	BIMCO (accessed through UNCTADstat)
	Productive Capacities Index (PCI) – Human Capital	3.33%	UNCTADstat
Regulatory Environment and Governance	Flag State Performance (FSP)	6.67%	ICS
	Services Trade Restrictiveness Index (STRI) for Water Transport	6.67%	OECD
	Worldwide Governance Indicators (WGI)	3.33%	World Bank
	Index of Economic Freedom – Business Freedom	3.33%	Heritage Foundation
Total		100%	

The indicators have been selected to capture the multifaceted nature of shipping competitiveness:

Trade indicators assess a country's integration into the global maritime economy. High-performing countries tend to demonstrate strong shipping service exports, robust connectivity to global liner networks, competitive transport costs, and efficient logistics systems. This pillar reflects the extent to which maritime capabilities are leveraged to support trade and facilitate economic activity across borders.

Table 2: Trade indicators

Indicator	Weight (out of 33.3%)	Definition
Sea Transport Services Exports	30%	Measuring a country's share of global maritime transport services exports, covering international freight and passenger movements by sea.
Liner Shipping Connectivity Index (LSCI)	30%	Assessing the frequency, breadth, and capacity of a country's container shipping connections.
International Transport and Insurance Costs of merchandise trade (ITIC)	20%	Evaluating the cost-efficiency of cross-border goods movement, based on Cost, Insurance, and Freight (CIF) / Free-on-Board (FOB) margins.
Logistics Performance Index (LPI)	20%	Capturing customs efficiency, infrastructure quality, shipment reliability, and logistics competence.

Fleet and Capital indicators measure the scale, value, and technical characteristics of a country's maritime assets. Metrics such as fleet value and tonnage are based on vessels under beneficial ownership (i.e., owned by companies located in the economy with main commercial responsibility for the vessel) while average fleet age is calculated by flag state.[4] Complementing these are indicators on the number of ship management companies and financial market depth, which represent the enabling infrastructure for commercial maritime operations. Together, these measures reflect both the physical and financial capital underpinning a country's maritime capacity.

[4] Henceforth, 'ownership' refers to beneficial ownership throughout the report.

Table 3: Fleet and Capital indicators

Indicator	Weight (out of 36.7%)[5]	Definition
Owned deadweight tonnage (DWT)	27.3%	Capturing total deadweight tonnage by country of beneficial ownership.
Owned fleet value	27.3%	Measuring the total market value of vessels by country of beneficial ownership.
Fleet age	18.2%	Measuring the average age of vessels by flag state.
Number of ship management companies	18.2%	Recording the number of ship management companies based in a country as a proxy for sector scale.
Financial Markets Depth	9.1%	Capturing the accessibility of equity and debt capital as a proxy for ship finance availability.[6]

Workforce indicators recognise that maritime competitiveness depends not only on ships and infrastructure, but also on the availability of skilled seafarers and shore-based professionals. While shipping is inherently international, a strong domestic maritime workforce adds value both to the wider maritime cluster and to the national economy. The inclusion of seafarer supply and human capital indicators ensures that labour market capacity is factored into assessments.

Table 4: Workforce indicators

Indicator	Weight (out of 10%)	Definition
Seafarer Supply	66.7%	Capturing the number of seafarers from a given country serving in the world merchant fleet.
Human Capital Score	33.3%	Assessing the education, skills, and health conditions of the population, along with research capacity, as a proxy for workforce quality.

Regulatory Environment and Governance captures the institutional conditions shaping how maritime business, international trade, and commerce are conducted. It includes measures of flag state performance, business freedom, and governance quality, offering insight into how effectively a country's regulatory framework supports shipping activity. A key component is the OECD Services Trade Restrictiveness Index (STRI) for Water Transport, which measures barriers to market entry, restrictions on foreign operators, and the transparency of domestic maritime regulations. Together, these indicators reflect how conducive a country's institutional environment is to investment, innovation, and international engagement in the shipping sector.

[5] Due to rounding, weights do not sum to exactly 100%.

[6] While this is an economy-wide measure rather than a maritime-specific one, it provides an indirect indication of how well a country's financial system can support capital-intensive industries such as shipping. It does not, however, fully reflect specialised ship finance structures or sector-specific risk assessments.

Table 5: Regulatory Environment and Governance indicators

Indicator	Weight (out of 20%)	Definition
Flag State Performance	33.3%	Measuring flag quality (presence on Paris/Tokyo MoU White Lists), activity in international shipping fora (attendance at key IMO meetings), and regulatory compliance (ratification of main conventions).
Services Trade Restrictiveness Index (STRI) for Water Transport	33.3%	Capturing barriers to foreign entry and the openness of maritime services markets.
Worldwide Governance Indicators (WGI)	16.7%	Measuring institutional strength across five key dimensions (Political Stability, Government Effectiveness, Regulatory Quality, Rule of Law and Control of Corruption).
Business Freedom	16.7%	Assessing the ability to freely start, operate, and close a business.

Indicator selection and weighting

The final mix of indicators was selected on the basis of conceptual relevance, empirical quality, and international comparability. Selection and weighting were determined through a collaborative process with the UK Chamber, with the structure designed to reflect both conceptual importance and data robustness. To determine the final weights of individual indicators, a tiered weighting framework was applied:

- First, each variable was classified into one of three tiers: Tier 1 (high importance), Tier 2 (moderate importance), or Tier 3 (supporting importance).
- Then, a fixed-point system was used to assign proportional weights: Tier 1 indicators were each allocated a baseline weight of 10%, with Tier 2 and Tier 3 indicators receiving weights scaled at two-thirds (6.67%) and one-third (3.33%) of that baseline, respectively.
- This approach ensures that components deemed more central to the index objective exert proportionally more influence on the final composite score, while maintaining a transparent and internally consistent structure.

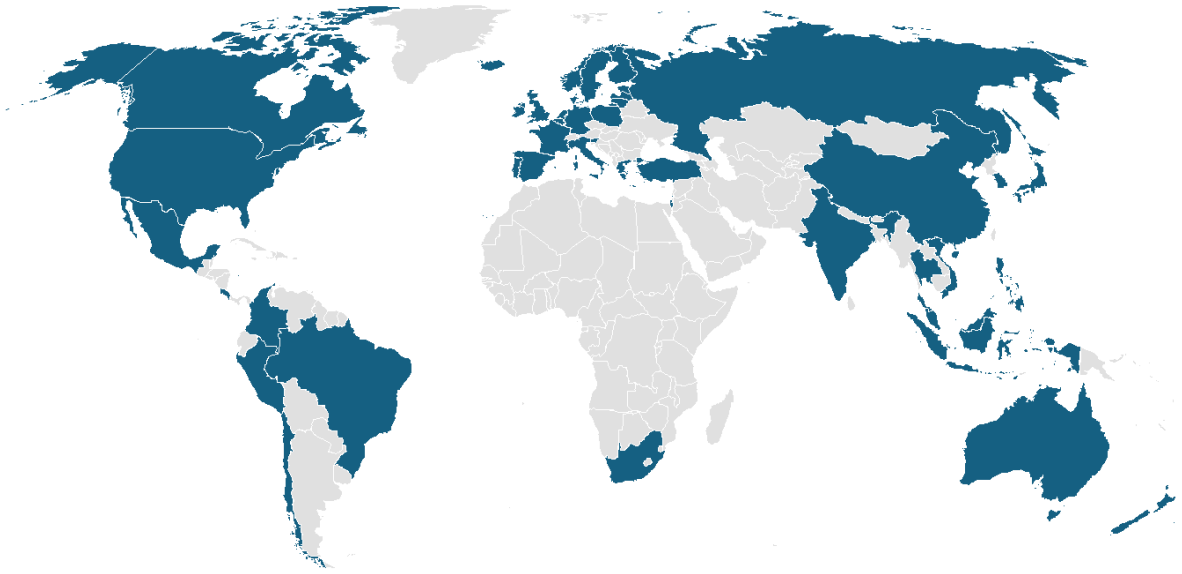
Country sample and temporal coverage

A total of 44 countries were selected for the final index, a scope which ensures coverage of key shipping countries while enabling adequate data availability for the main indicators. Table 6 and Figure 1 present the sample of countries, broken down by region and plotted geographically.

Table 6: Index countries by region

Region	Country
Europe, Middle East, and Africa (EMEA)	Belgium; Denmark; Estonia; Finland; France; Germany; Greece, Iceland; Ireland; Israel; Italy; Latvia; Lithuania; Netherlands; Norway; Poland; Portugal; Russia; Slovenia; South Africa; Spain; Sweden; Turkey; United Kingdom
Asia-Pacific (APAC)	Australia; China (ex-Hong Kong); India; Indonesia; Japan; Malaysia; New Zealand; Philippines; South Korea; Singapore; Thailand; Vietnam
North America (NA)	Canada; Mexico; United States
Latin America (LATAM)	Brazil; Chile; Colombia; Costa Rica; Peru

Figure 1: Geographical coverage of index countries



Together, these countries account for over 80% of global deadweight tonnage (DWT) by beneficial ownership and 85% of global gross domestic product (GDP),[7] and include most major coastal economies and leading providers of shipping services. The sample strikes a balance between sectoral relevance and data availability in order to ensure comparability across a range of indicators.

Country inclusion was ultimately constrained by the availability of consistent data across all components, most notably the Services Trade Restrictiveness Index (STRI) for Water Transport, which limited broader geographic coverage. This excluded most Middle Eastern

[7] World Bank (2024). GDP (current US$).

countries, notably the United Arab Emirates, together with Hong Kong, Panama, Malta, and Cyprus. However, STRI is presented for virtually all other leading maritime nations, so this is of limited concern when creating the index.

The index ranks countries using data from 2023 and 2014, providing two snapshots a decade apart. This approach enables both a cross-sectional assessment of current competitiveness and a longitudinal comparison to capture changes over the past decade. The years were chosen to maximise coverage and consistency across indicators, with 2023 representing the most recent data and 2014 the earliest point with sufficient availability for key metrics. Where data for a given year were unavailable, values have been imputed using the closest adjacent year with reliable data.

Calculation of index scores

After collating and cleaning the data, values for each of the indicators were scaled to a [0, 1] interval with min-max normalisation, using the following formula:

$$I_i = \frac{V_i - \min(series)}{\max(series) - \min(series)}$$

where I_i is the normalised indicator value for country i, V_i is the raw value for country i, $\min(series)$ is the lowest raw value among sample countries, and $\max(series)$ is the highest raw value among sample countries. For certain indicators, the distribution of raw values was highly skewed due to the nature of the underlying data, which would have impaired the interpretability and comparability of normalised scores. To mitigate this, a logarithmic transformation was applied prior to normalisation. Please refer to Annex A for further methodological detail on the data and the statistical treatment of individual components. Furthermore, for some indicators, such as Fleet age, International Transport and Insurance Costs of merchandise trade (ITIC), and Services Trade Restrictiveness Index (STRI) for Water Transport, higher values indicate worse performance, so the formula is inverted:

$$I_{i,inv} = \frac{\max(series) - \mathrm{V}_i}{\max(series) - \min(series)}$$

Through this procedure, each country in the sample receives a value between 0 and 1 for each indicator, such that the best-performing country obtains a value of 1 and the worst-performing obtains a value of 0. Then, indicators within the four pillars are weighted according to the determined weights and multiplied by 100 to compute aggregated pillar scores. Finally, pillar scores are combined into an overall composite score for each country.

It is important to note that country performance for each indicator and thus in pillar and composite index scores should be viewed strictly in relation to the sample of countries considered, not against any overall global benchmark. For example, a given country will be given score 0 for a given indicator if its performance is the worst in the sample of 44 countries. However, it might theoretically still fare better than the 150+ other countries which are not part of the index, i.e., its performance might be stronger in the global context.

3 Shipping Competitiveness Index

3.1 Composite index results

Singapore leads the 2023 rankings, reflecting its strength across nearly all pillars (Trade; Fleet and Capital; Workforce; Regulatory Environment and Governance), followed closely by Japan, China, Germany, and the UK. The United States, Greece, the Netherlands, South Korea, and Denmark make up the rest of the global top ten. Table 7 displays the final composite scores and rankings for each constituent index country.

Table 7: Shipping Competitiveness Index results

Score (out of 100)	Ranking	Country	Change in ranking since 2014
82.8	1	**Singapore**	↑ 1
78.1	2	**Japan**	↓ 1
77.9	3	**China**	↑ 4
74.2	4	**Germany**	↓ 1
74.1	5	**United Kingdom**	→
71.2	6	**United States**	↓ 2
70.2	7	**Greece**	↑ 4
69.7	8	**Netherlands**	↓ 2
69.3	9	**South Korea**	↑ 1
68.3	10	**Denmark**	↓ 1
67.5	11	**Norway**	↓ 3
65.2	12	**France**	→
62.9	13	**Belgium**	→
57.9	14	**Spain**	↑ 6
56.0	15	**Italy**	↓ 1
53.9	16	**Australia**	↓ 1
53.2	17	**Malaysia**	↓ 1
52.8	18	**Canada**	↓ 1
52.3	19	**Sweden**	↓ 1
51.9	20	**Turkey**	↓ 1
50.8	21	**India**	↑ 6
49.9	22	**Finland**	↓ 1
47.2	23	**Brazil**	↓ 1
47.1	24	**Ireland**	↓ 1
45.6	25	**Portugal**	↑ 3

45.5	26	**Poland**	↓ 1
44.1	27	**Indonesia**	↑ 3
43.3	28	**Vietnam**	↑ 6
42.7	29	**Philippines**	↑ 8
41.3	30	**Israel**	↑ 2
40.9	31	**Russia**	↓ 7
40.9	32	**New Zealand**	↓ 3
40.5	33	**Thailand**	→
40.0	34	**Latvia**	↓ 3
39.6	35	**Estonia**	↑ 4
38.8	36	**Chile**	↓ 10
37.8	37	**Lithuania**	↓ 1
34.7	38	**South Africa**	↓ 3
34.3	39	**Mexico**	↓ 1
31.4	40	**Peru**	↑ 1
30.5	41	**Slovenia**	↓ 1
29.8	42	**Colombia**	→
26.1	43	**Iceland**	→
19.9	44	**Costa Rica**	→

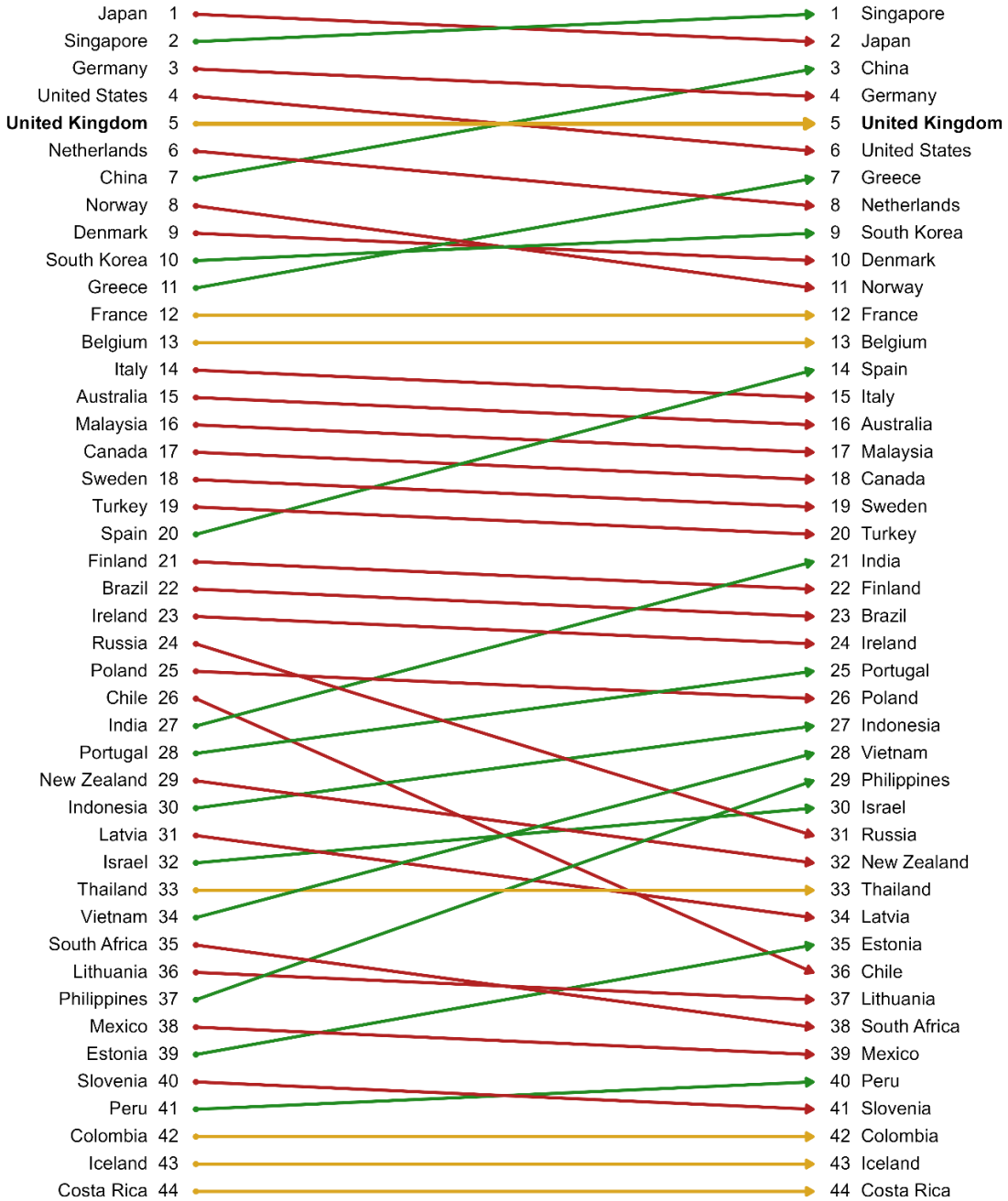
Source: Cebr analysis

Compared to a decade ago, Japan has fallen from 1st to 2nd, while Singapore has moved into the top position. China has risen from 7th to 3rd, marking the largest gain within the top ten along with Greece, which has gained four positions to replace China at 7th. Norway has dropped out of the top ten, moving from 8th to 11th. The UK is the only country in the top ten with no change in relative standing over the past decade, holding its position in 5th. Section 3.4 benchmarks its performance against peers across pillars and index components. It is worth noting that overall scores at the top are closely clustered. Japan and China are separated by two decimal points, and Germany and the UK by only one, highlighting the narrow margins involved and the importance of taking a granular view of performance rather than focusing on rank order alone. Sections 3.2 and 3.3 analyse pillar rankings and scores in more detail.

Beyond the best performers, several countries recorded substantial ranking improvements. The Philippines rose from 37th to 29th (+8), India from 27th to 21st (+6), Vietnam from 34th to 28th (+6), Spain from 20th to 14th (+6), and Estonia from 39th to 35th (+4). These movements reflect improved performance relative to their peers across a range of indicators. The largest declines were observed in Chile (–10) and Russia (–7), with Chile dropping from 26th to 36th and Russia from 24th to 31st. Section 3.5 provides deep dives into the shipping performance improvements of China, Greece, and Spain, the three countries with the largest advances in ranking since 2014.

The geographic composition of the best-performing countries underscores the global distribution of shipping competitiveness, with dominance by Asian and European countries. Between the two regions, however, some temporal trends are visible: within the top ten, three Asian countries have improved their ranking since 2014, while even Japan dropping a place is due to it having been overtaken by Singapore, another Asian country. Conversely, only one European nation in the top ten has improved its relative ranking, with three declining. These movements align with the notable ongoing rise of Asian shipping nations and the wider reshuffling of commercial maritime interests and activity. Figure 2 visualises the changes in relative rankings since 2014, with the UK in bold.

Figure 2: Change in Shipping Competitiveness Index Rankings, 2014 to 2023



Source: Cebr analysis

3.2 Pillar rankings

Table 8 presents country rankings across the four pillars: Trade (33.3% of composite score), Fleet and Capital (36.7%), Workforce (10%), and Regulatory Environment and Governance (20%). While top-performing countries tend to score highly across all pillars, there are some exceptions. Singapore, for instance, ranks only 25th in Workforce. This reflects its limited capacity to supply seafarers at scale, despite a high-quality training system. Similarly, Greece tops the Fleet and Capital pillar but ranks 28th in Regulatory Environment and Governance.

The diversity of shipping competitiveness models is reflected in the composition of pillar scores of the leading countries. Some, such as Singapore and China, score highly on trade and fleet-related indicators, while others, like the UK and the Netherlands, perform more strongly on governance and institutional frameworks.

Table 8: Index pillar rankings

Country	Overall ranking	Trade	Fleet and Capital	Workforce	Regulatory Environment and Governance
Singapore	1	1	2	25	5
Japan	2	10	4	6	3
China	3	4	3	4	25
Germany	4	2	9	13	8
UK	5	8	5	9	4
US	6	3	7	2	27
Greece	7	14	1	11	28
Netherlands	8	6	11	18	1
South Korea	9	9	8	1	22
Denmark	10	11	10	5	7
Norway	11	17	6	8	2
France	12	5	14	16	14
Belgium	13	7	12	23	18
Spain	14	12	24	14	10
Italy	15	13	18	33	23
Australia	16	19	22	20	16
Malaysia	17	16	17	26	26
Canada	18	22	23	21	11
Sweden	19	15	29	7	20
Turkey	20	18	16	22	30
India	21	21	13	19	38
Finland	22	20	32	12	13
Brazil	23	28	15	24	39
Ireland	24	26	27	37	6
Portugal	25	29	28	35	12
Poland	26	23	37	17	19
Indonesia	27	32	19	15	40
Vietnam	28	30	21	27	41
Philippines	29	27	33	10	29
Israel	30	24	25	38	36
Russia	31	36	20	3	44

New Zealand	32	33	35	31	15
Thailand	33	25	26	28	43
Latvia	34	38	39	30	9
Estonia	35	34	36	29	21
Chile	36	40	30	32	24
Lithuania	37	35	41	34	17
South Africa	38	37	34	41	32
Mexico	39	41	31	36	35
Peru	40	42	38	40	34
Slovenia	41	31	44	42	33
Colombia	42	39	40	39	37
Iceland	43	43	42	43	31
Costa Rica	44	44	43	44	42

Source: Cebr analysis

3.3 Pillar score analysis

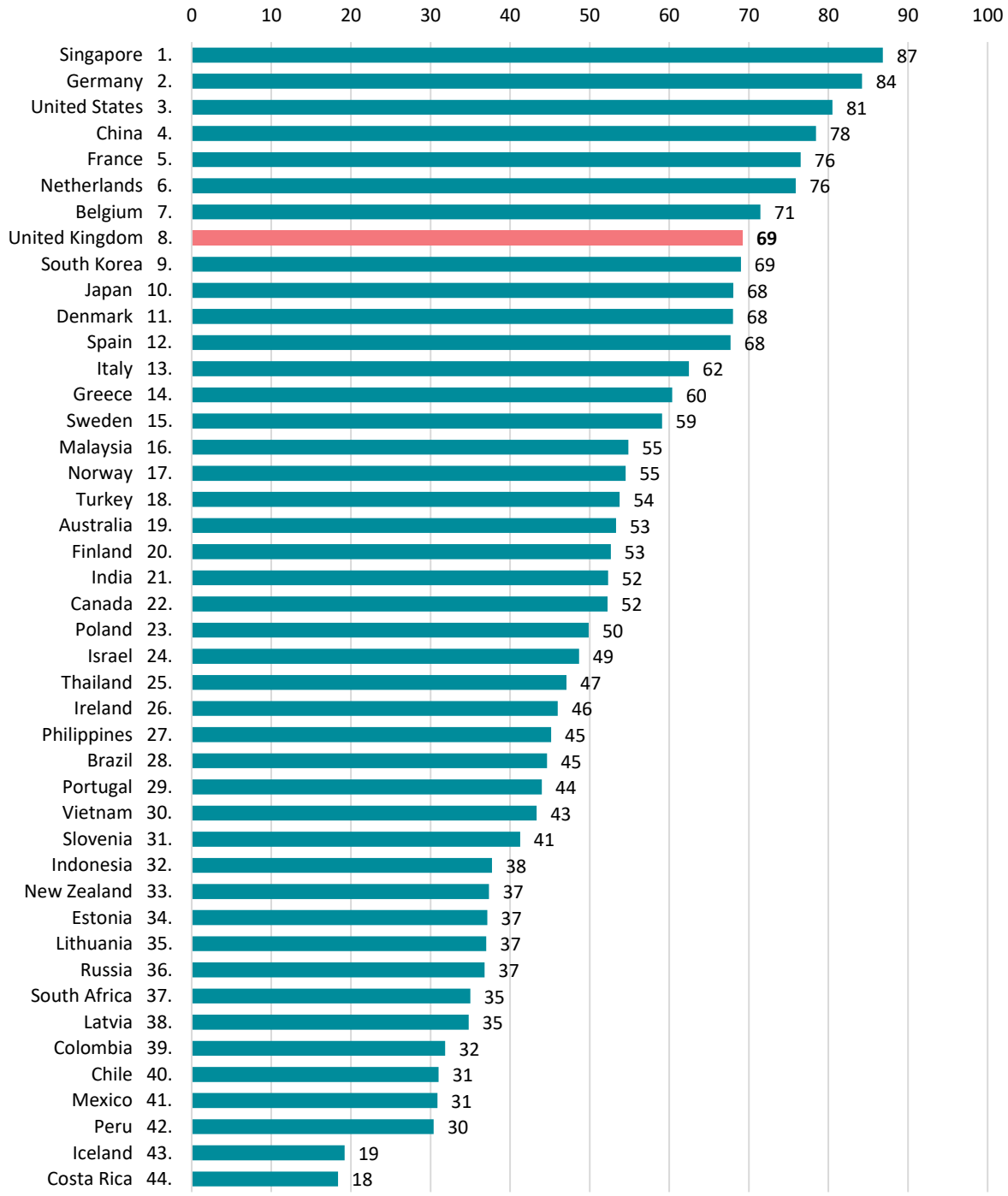
Trade (33.3%)

This pillar captures the extent to which countries are integrated into global maritime trade networks and supported by efficient logistics systems. It comprises four indicators (see Annex A for more detail for each):

Indicator	Weight (out of 33.3%)	Definition
Sea Transport Services Exports	30%	Measuring a country's share of global maritime transport services exports, covering international freight and passenger movements by sea.
Liner Shipping Connectivity Index (LSCI)	30%	Assessing the frequency, breadth, and capacity of a country's container shipping connections.
International Transport and Insurance Costs of merchandise trade (ITIC)	20%	Evaluating the cost-efficiency of cross-border goods movement, based on Cost, Insurance, and Freight (CIF) / Free-on-Board (FOB) margins.
Logistics Performance Index (LPI)	20%	Capturing customs efficiency, infrastructure quality, shipment reliability, and logistics competence.

Figure 3 presents the results of the Trade pillar, which accounts for one-third of the overall index. In 2023, the best-performing countries are **Singapore, Germany, the United States, China, and France**, with the **Netherlands, Belgium, the UK, South Korea, and Japan** rounding out the top ten.

Figure 3: Trade pillar scores



Source: Cebr analysis

Unsurprisingly, top-ranked countries perform well across most indicators:

- Sea Transport Services Exports is led by Singapore (100), China (98), and the US (93), with the UK (77) in 10th.
- LSCI is dominated by China (100) due to its extensive port network and trade prowess, beating the next countries, South Korea (83) and Singapore (82), by some distance.

The UK (70) ranks 10th. Though not a direct component of the LSCI, the port throughput of these countries offers an illustration of China's scale: in 2023, its total container port throughput was almost 280 million twenty-foot equivalent units (TEU), while that of South Korea and Singapore was 30 million and 39 million TEU, respectively.[8]

- ITIC is led by European countries, with Germany (100), Slovenia (90.5), and France (89.8) obtaining the lowest Cost, Insurance, and Freight (CIF) / Free-On-Board (FOB) margins across their main trade partners, with the UK (62) in 16th.
- Singapore (100) performs the best for LPI, demonstrating the efficiency and modernity of its ports, followed by Finland (91) and Germany (85), with the UK (64) in 19th.

These results broadly align with each country's established role in global trade and shipping. Singapore's consistently strong performance corroborates its status as a global transshipment hub and its strategic investment in port infrastructure and digitalisation. Germany, the Netherlands, and Belgium reap a competitiveness dividend from their central role in European trade flows and high-performing logistics networks, with the three largest European ports, Rotterdam, Antwerp, and Hamburg, acting as major gateways.

The United States and China, as the world's largest economies, dominate sea transport services export volumes, while China's high LSCI score is supported by both its manufacturing scale and the extensive port connectivity along its coastline. The strong showing of European economies in ITIC also reflects both geographic proximity to major markets and robust transport infrastructure that minimises cross-border trade frictions, and acts as an enabler for a competitive shipping industry.

Fleet and Capital (36.7%)

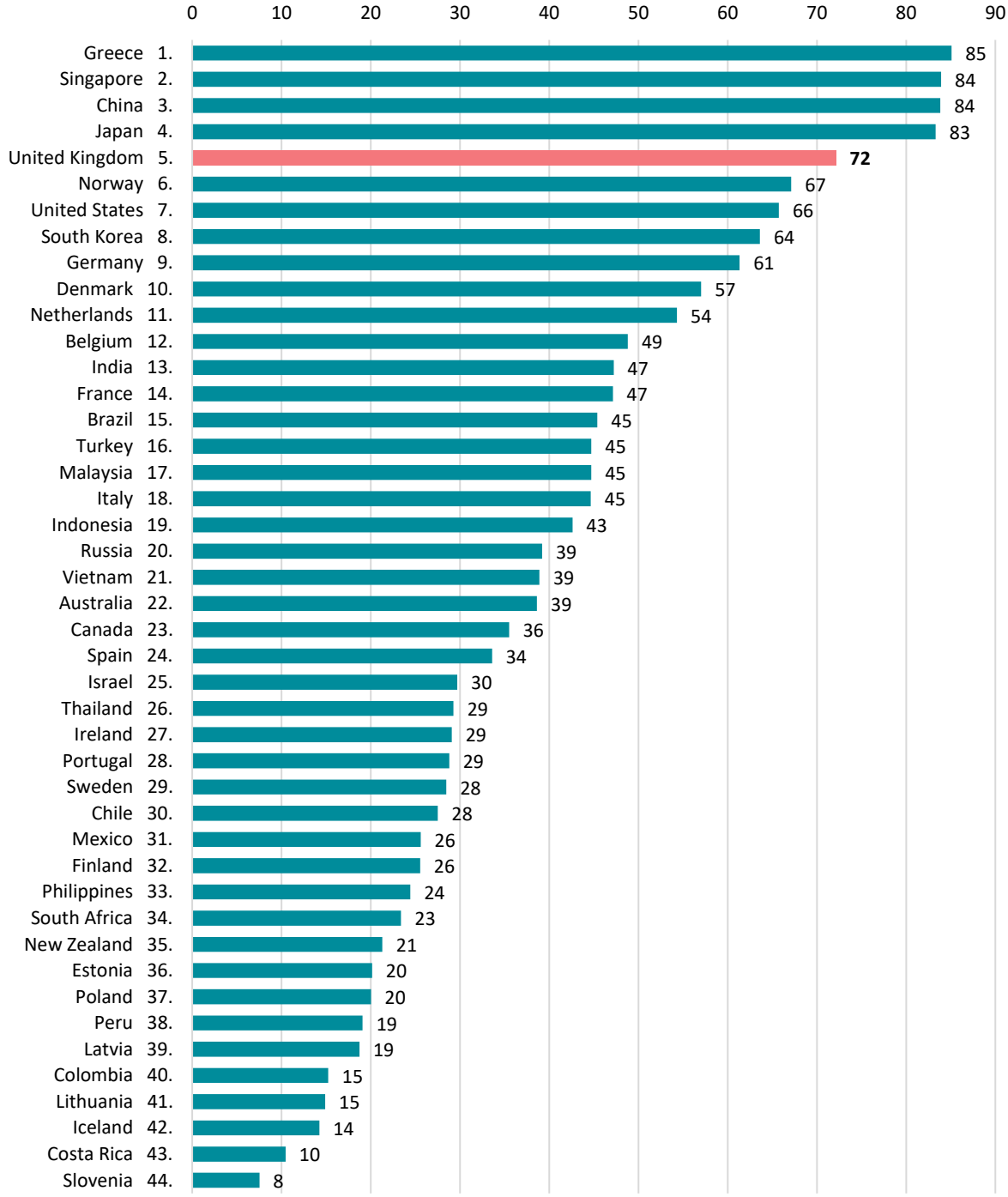
This pillar evaluates the strength of a country's maritime asset base and the enabling infrastructure that supports commercial operations. It consists of five indicators:

Indicator	Weight (out of 36.7%)	Definition
Owned deadweight tonnage (DWT)	27.3%	Capturing total deadweight tonnage by country of beneficial ownership.
Owned fleet value	27.3%	Measuring the total market value of vessels by country of beneficial ownership.
Fleet age	18.2%	Measuring the average age of vessels by flag state.
Number of ship management companies	18.2%	Recording the number of ship management companies based in a country as a proxy for sector scale.
Financial Markets Depth	9.1%	Capturing the accessibility of equity and debt capital as a proxy for ship finance availability.

[8] UNCTADstat (2025). Container port throughput, annual (analytical).

Figure 4 presents the Fleet and Capital pillar scores for each country, accounting for 36.7% of the total index. **Greece tops the pillar, followed by Singapore, China, Japan, and the UK. Norway, the US, South Korea, Germany, and Denmark** complete the top ten.

Figure 4: Fleet and Capital pillar scores



Source: Cebr analysis

- Greece leads this pillar, reflecting its long-standing dominance in global ship ownership and commercial management. It ranks 1st across Owned DWT, Fleet Value, and the Number of Ship Management Companies,[9] achieving the maximum score of 100 in each. This performance underscores Greece's continued role as a global hub for asset ownership and vessel operations.
- In terms of Owned DWT, Greece (100; c. 394 million DWT) is followed by four Asian countries: China (97; c. 309 million DWT), Japan (94; 238 million DWT), Singapore (88; 142 million DWT), and South Korea (84; 97 million DWT), with the UK (78; 57 million DWT) in 7th.
- In terms of Fleet value, China (98) and Japan (97) are again close 2nd and 3rd, with a larger gap to the United States (84) at 4th, with the UK (66) again in 7th.
- The youngest fleet among the sample countries is owned by Singapore (100; average vessel age of 11 years), followed by China (94; 13 years) and Belgium (86; 16 years). On this indicator, the UK (69; 22 years) is 13th.
- For the Number of ship management companies, Singapore (72) and the UK (62) complete the top three. While this indicator does not consider the scale of these firms, qualitative desk research suggests the ranking is broadly consistent with other assessments of leading ship management centres.
- In terms of Financial Markets Depth, the UK ranks joint 1st (100) with Sweden and Denmark, closely followed by Singapore (99) and Canada (96).

These results reflect the structural advantages and specialisations of each country's maritime sector. Greece's dominance is consistent with its long-standing role as the world's largest ship-owning nation, supported by a breadth of expertise in ship management and a favourable fiscal regime, primarily designed to support Greek shipowners, creating a knowledge and capital cluster with high competitiveness. The strong performance of East and Southeast Asian countries such as China, Japan, Singapore, and South Korea mirrors their extensive commercial fleets, high levels of newbuild investment, and global integration in shipping value chains.

Singapore's leadership in fleet age and ship management underscores both its strategic policy focus on maritime services and its role as a hub for high-specification, modern tonnage. Meanwhile, the UK's top score in Financial Markets Depth stems from its position as a global centre for maritime finance, insurance, and legal services, while its fleet is also globally competitive (score of 78 for owned DWT, ranked 7th).

[9] Note that this is based on 2023 data, with changes potentially having occurred since.

Workforce (10%)

This pillar captures the availability and strength of human capital in the maritime sector, reflecting the essential role of seafarers and skilled professionals in sustaining global shipping operations. It should be noted that it does not cover dimensions such as labour market flexibility and immigration, which are discussed qualitatively in Section 6. The pillar is composed of two indicators:

Indicator	Weight (out of 10%)	Definition
Seafarer Supply	66.7%	Capturing the number of seafarers from a given country serving in the world merchant fleet.
Human Capital Score	33.3%	Assessing the education, skills, and health conditions of the population, along with research capacity, as a proxy for workforce quality.

Figure 5 presents the results of the Workforce pillar, which accounts for one-tenth of the overall index. The pillar is led by **South Korea**, followed by the **United States, Russia, China, Denmark, Japan, Sweden, Norway, the UK, and the Philippines.**

For Seafarer supply, the **Philippines** comes on top with a score of 100 as the world's largest supplier of seafarers. It is followed by Russia (97), Indonesia (92), China (91), and India (89), the United States (80), Malaysia (73.0), Vietnam (72.9), and the UK (72.5).[10] The common denominator for most of these countries is their sheer scale and population size, from which to draw potential seafarers. However, successful specialisation and a well-designed education and training system mean that the Philippines, for example, outperforms China on this metric despite the latter's population being twelve times larger. **For interpretation purposes, it should be emphasised that this indicator considers a country's capacity to provide seafarers for the global fleet, rather than to optimally crew their national vessels**.

The second component of the Workforce pillar, Human Capital, is led by South Korea (100), followed by three Nordic countries: Sweden (91), Finland (86), and Denmark (85). The UK (58) ranks 20th.

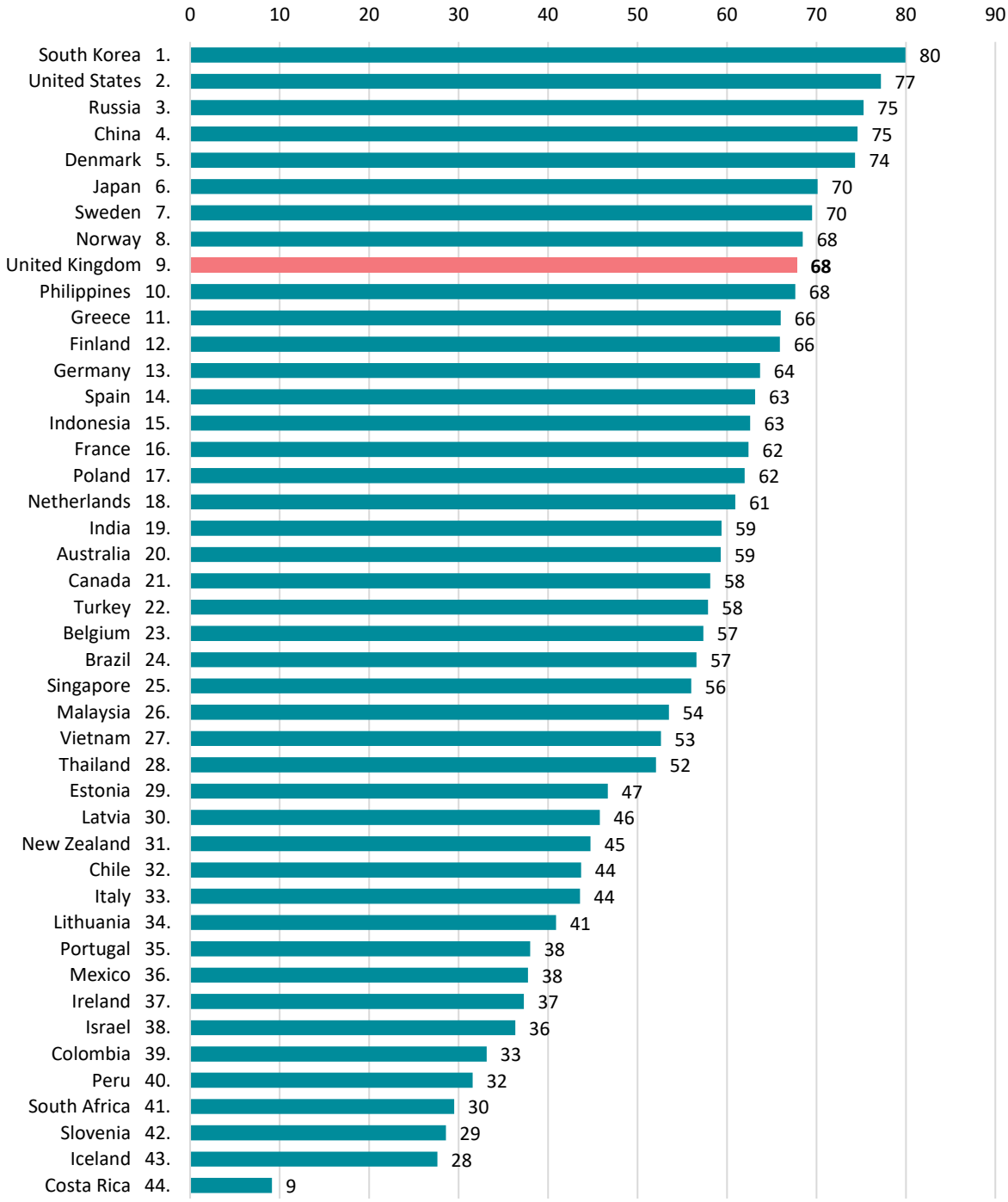
The rankings reflect a combination of demographic scale and deliberate national investment in maritime labour development. South Korea's top score stems from a strong technical education system, producing a high-quality workforce for the maritime sector. The Philippines continues to lead in seafarer supply because of a long-established focus on maritime employment, supported by state-run academies and extensive deployment infrastructure.

Russia, Indonesia, and India also maintain large training systems. Vietnam, 8th for seafarer supply, is an emerging player, backed by low costs and growing investment in training. In

[10] It is worth noting that some prominent seafarer-supplying nations, most notably Ukraine (6th globally), are not reflected in the ranking due to the country scope.

contrast, Nordic countries like Sweden, Finland, and Denmark score highly on human capital due to high overall education standards.

Figure 5: Workforce pillar scores



Source: Cebr analysis

Many other countries, like Greece and Singapore, though not at the top of these specific metrics, succeed in generating a high-quality maritime workforce to fulfil national objectives. These results point to two distinct models: countries that compete through scale and cost-

efficiency in seafarer deployment, and those that focus on technical quality and workforce specialisation. State-level training systems and the maritime labour market are analysed in more detail in Section 6.1.

Regulatory Environment and Governance (20%)

The Regulatory Environment and Governance pillar, which accounts for 20% of the overall index, assesses the institutional and policy settings that shape the operating environment for maritime business. It comprises four indicators:

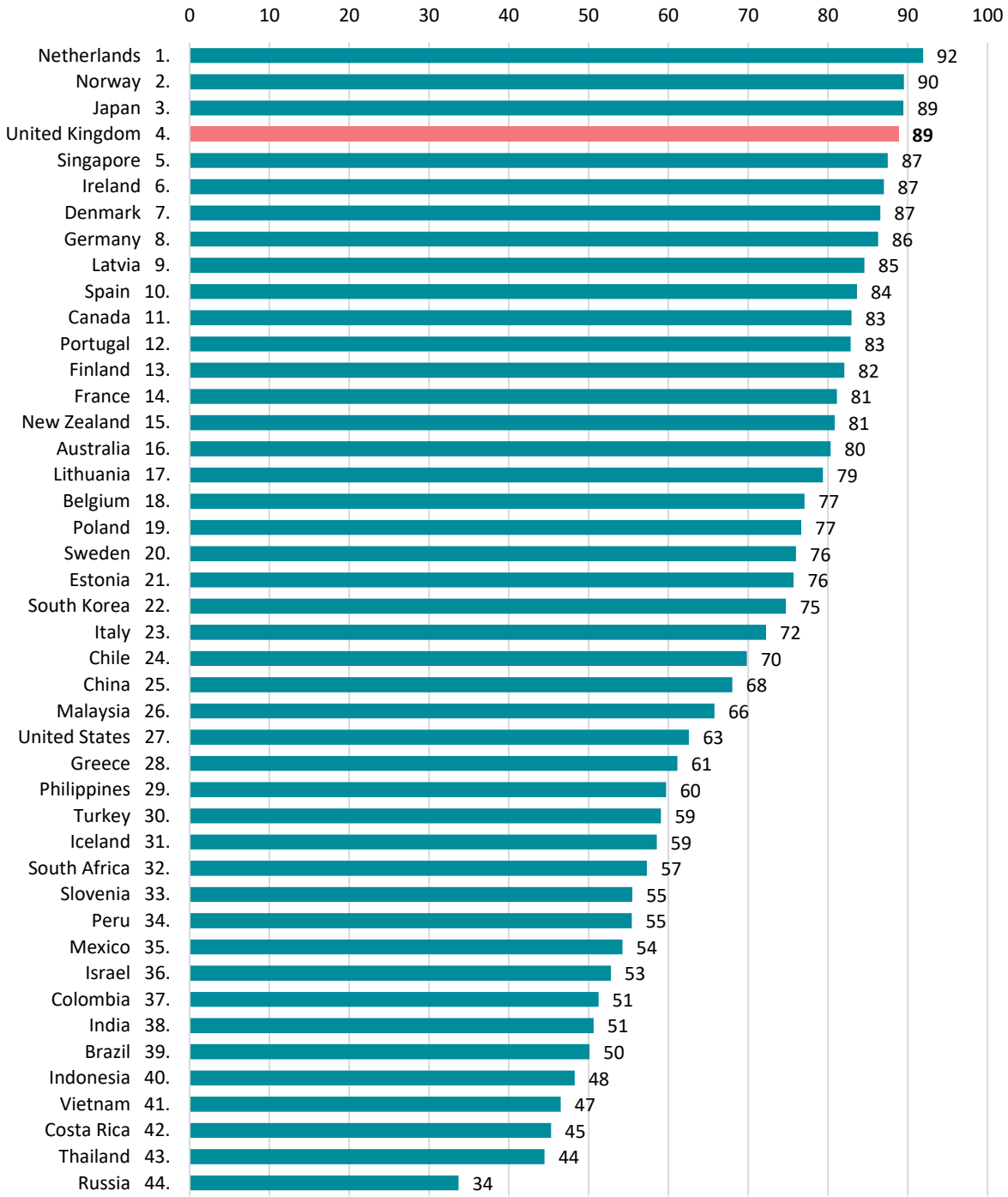
Indicator	Weight (out of 20%)	Definition
Flag State Performance	33.3%	Measuring flag quality (presence on Paris/Tokyo MoU White Lists), activity in international shipping fora (attendance at key IMO meetings), and regulatory compliance (ratification of main conventions).
Services Trade Restrictiveness Index (STRI) for Water Transport	33.3%	Capturing barriers to foreign entry and the openness of maritime services markets.
Worldwide Governance Indicators (WGI)	16.7%	Measuring institutional strength across five key dimensions (Political Stability, Government Effectiveness, Regulatory Quality, Rule of Law and Control of Corruption).
Business Freedom	16.7%	Assessing the ability to freely start, operate, and close a business.

Figure 6 presents the results of the Regulatory Environment and Governance pillar, which accounts for one-fifth of the overall index. For this pillar, the **Netherlands ranks highest, with Norway, Japan, the UK, and Singapore rounding out the top five, followed by Ireland, Denmark, Germany, Latvia, and Spain.**

- For Flag State Performance, a total of 24 countries out of 44 receive a perfect score of 100. In the composite index top ten, this is achieved by 80% of the countries: Singapore, Japan, Germany, the UK, Greece, the Netherlands, South Korea, and Denmark, with only China (93) and the US (79) missing full marks.
- For the STRI indicator, the UK and Japan share the lead with the highest score of 100, followed by Spain (98.1), the Netherlands (98.0), and Latvia (94). **The UK's lead on this indicator is notable**, as it showcases continued excellence despite not being part of the EU free market anymore. This demonstrates low restrictions on foreign entry and movement of people, combined with regulatory transparency. However, other evidence suggests a more nuanced picture, with the current absence of a dedicated short-term maritime visa route and related immigration constraints discussed further in Section 6.
- The Worldwide Governance Indicators component is led by Singapore, followed by Denmark (91), New Zealand (89), Finland (87), and Norway (86), demonstrating the well-established governance frameworks countries, and enabling stable environments for shipping businesses. The UK (73) ranks 15th.

- Finally, Norway leads the Business Freedom indicator, with Denmark (85), New Zealand (84), Australia (83), and Canada (82) rounding out the top five. The UK (60) ranks 17th.

Figure 6: Regulatory Environment and Governance pillar scores



Source: Cebr analysis

These results align with the institutional strengths and maritime governance models that underpin leading shipping jurisdictions. The Netherlands' top ranking is consistent with its

reputation for regulatory efficiency and transparency, supported by a high-performing flag and liberal trade regime. Norway and Denmark similarly benefit from strong public institutions and an emphasis on predictable, pro-business regulation, which contribute to their attractiveness as shipping hubs. The UK's high ranking and STRI score highlights its commitment to open market access and regulatory clarity in the maritime sector, even post-Brexit, a factor that continues to support **London's leading role in maritime services**.

Singapore combines a top-tier flag with exceptional institutional quality, which, alongside its zero-tolerance approach to corruption and efficient regulatory framework, enable a high ranking in yet another pillar. Countries such as Japan and Germany also score highly due to a combination of well-regarded flags, active participation in international rulemaking via the International Maritime Organization (IMO) and the International Labour Organization (ILO), and robust legal frameworks. Overall, high scores in this pillar tend to correspond with jurisdictions that offer clarity, stability, and low barriers to entry. All of these are crucial factors considered by international shipping businesses operating across borders.

3.4 Benchmarking the UK's performance

The UK exhibits strong performance in the composite index, retaining its 5th-place ranking from 2014. It possesses a particular edge in the Regulatory Environment and Governance pillar (score: 89), where it ranks 4th among the sample countries. The UK's regulatory strength is compounded by London's status as a global centre for maritime law, arbitration, insurance (e.g., P&I clubs and Lloyd's of London), and classification societies (e.g., Lloyd's Register and DNV[11]). It is also the home of the International Maritime Organization (IMO) and hosts a significant share of international shipping disputes, while benefiting from widespread preference for English law in trade and chartering contracts.[12]

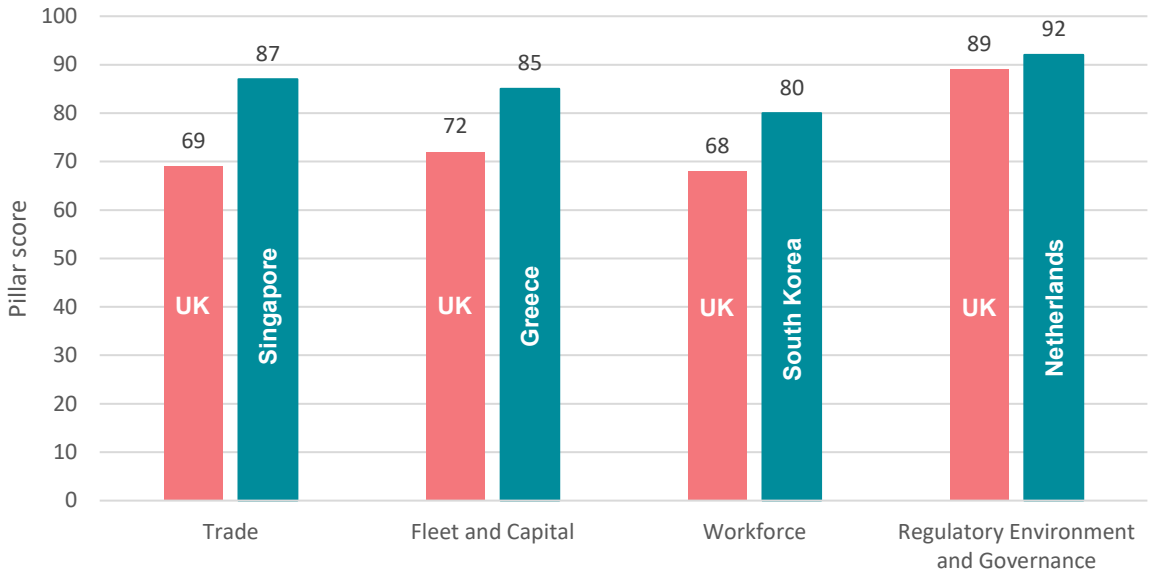
In addition to its strength in Regulatory Environment and Governance, the country also performs well in Fleet and Capital (score: 72), ranking 5th among the sample countries and showing particularly strong results in Owned DWT (7th), Financial Markets Depth (joint 1st), and the Number of ship management companies (3rd).

To further put the UK's performance into context, we benchmarked its pillar and indicator scores with those of two other leading shipping nations, Singapore and Germany. While both countries are renowned for their shipping sectors' strength, ranking above the UK in the composite index at 1st and 4th, respectively, their models differ: Singapore is a trade-driven transshipment hub with a modern, high-capacity fleet and strong state-backed maritime infrastructure, while Germany is a historically established, export-oriented shipping centre with large commercial operators. Thus, each provides a distinct but useful benchmark for comparing the UK across the various index components. Figure 7 juxtaposes the UK's pillar scores against the top performer in each pillar.

[11] DNV's headquarters are located in Oslo, Norway, but it has a strong presence in London.

[12] Menon Economics and DNV (2024). The Leading Maritime Cities of the World.

Figure 7: Pillar scores for the UK and the best-performing countries

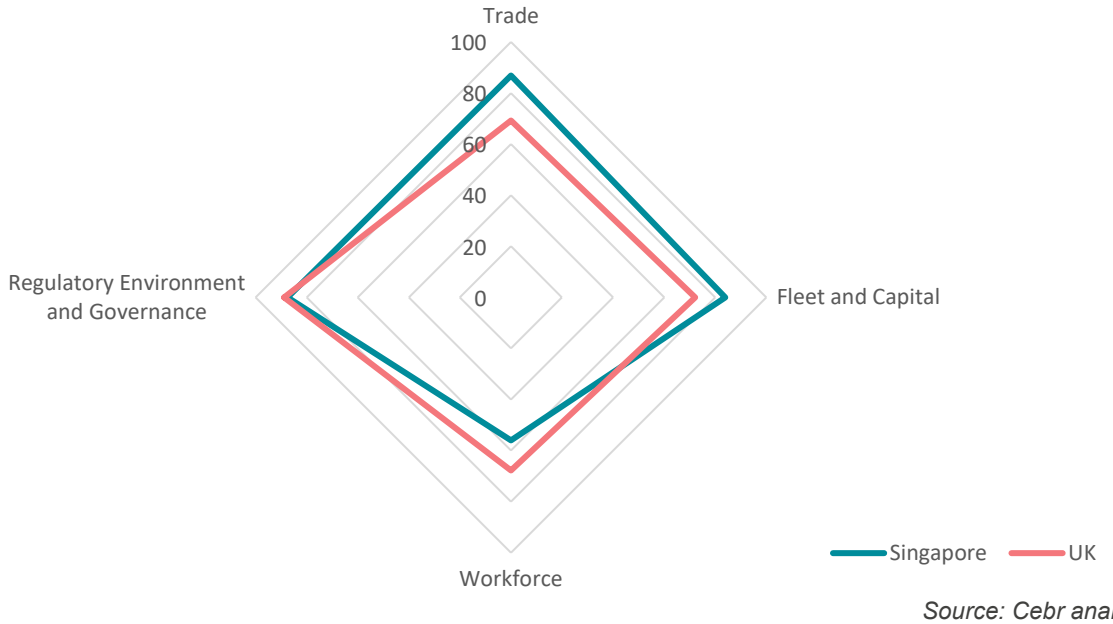


Source: Cebr analysis

Singapore

Figure 8 compares aggregate scores across the four pillars for the UK and Singapore. Singapore, the top performer in the composite index, leads in the Trade (87 vs 69) and Fleet and Capital (87 vs 72) pillars. Its position reflects structural advantages: a central location on major East–West shipping routes, a port system consistently ranked among the most efficient globally (LPI: 100 vs 64), and strong integration into containerised shipping networks (LSCI: 82 vs 70). Its Sea Transport Services Exports score (100 vs 77) illustrates the scale of its transshipment operations, which account for the majority of container throughput.

Figure 8: Pillars of shipping competitiveness, United Kingdom and Singapore



Source: Cebr analysis

Fleet and Capital indicators further highlight its competitive position in shipping, with one of the largest fleets by DWT among the sample countries (88 vs 78) and the youngest average fleet age (Fleet Age score: 100 vs 69), driven in part by government-backed fleet renewal incentives and competitive ship ownership structures.

The UK, in turn, performs more strongly in the Regulatory Environment and Governance (89 vs 87) and Workforce (68 vs 56) pillars. Its higher seafarer supply score (73 vs 49) reflects its larger population base and the relative breadth of its maritime training provision, which together support a larger pool of active seafarers. In terms of governance, both countries meet high international standards: each scores 100 in Flag State Performance, while the UK achieves the top indicator score on the Services Trade Restrictiveness Index for Water Transport (100), indicating low barriers to maritime services trade and competition. Singapore, on the other hand, scores 97 in the Worldwide Governance Indicators, reflecting similarly strong institutional performance.

Germany

Figure 9 compares the UK and Germany across the four pillars. Germany's marginal lead in the composite score (74.2 vs 74.1) is primarily driven by its stronger performance in the Trade pillar (84 vs 69). Germany ranks among the most trade-integrated economies in the sample, benefiting from highly efficient ports (LPI: 85 vs 64) and the lowest measured trade costs (ITIC: 100 vs 62). Its excellent score in Sea Transport Services Exports (92 vs 77) reflects the scale of its liner and bulk shipping operations, supported by major global carriers such as Hapag-Lloyd and Oldendorff. The port of Hamburg reinforces this position, serving as a critical node for North–South and East–West cargo flows and supporting a wide range of shipping, logistics, and maritime services.

Figure 9: Pillars of shipping competitiveness, United Kingdom and Germany

Source: Cebr analysis

Germany also scores well in Regulatory Environment and Governance (86 vs 89), with strong performance on the Services Trade Restrictiveness Index (91) and full compliance in Flag

State Performance (100). Its regulatory framework is underpinned by a stable legal and institutional environment and alignment with EU maritime regulation, although it lacks the international legal and arbitration footprint seen in the UK. For the Workforce pillar, the UK also obtains a higher pillar score (64 vs 68). While Germany performs better on Human Capital (74 vs 58), the UK outperforms Germany in Seafarer supply (59 vs 73).

In Fleet and Capital, Germany maintains one of the largest merchant fleets by owned deadweight tonnage (81 vs 78), attesting to the scale of its shipping companies. Nonetheless, the fleet is relatively old (Fleet Age score: 36 vs 69), and the estimated capital value of vessels is lower than that of several peers (Fleet Value score: 60 vs 66). It also has fewer ship management companies than the UK (Number of ship management companies score: 58 vs 62).

Areas for improvement

While the UK ranks 5th overall in the Shipping Competitiveness Index as a testament to the strength and resilience of its maritime ecosystem, detailed analysis of the component indicators reveals areas where performance could be enhanced if the UK seeks to challenge the global frontrunners.

Improving export performance and logistics efficiency

The Trade pillar presents notable scope for improvement. The UK ranks 10th in Sea Transport Services Exports, with Singapore 1st. These exports refer to revenues earned by UK-resident operators transporting goods or passengers by sea to or between other countries, including freight and passenger services. However, a large share of the UK's freight is carried by international operators not domiciled in the UK, limiting what is recorded in UK export figures. This is not atypical and is in accordance with the 1987 OECD Common Shipping Principles to which the UK ascribes and are enshrined in numerous free trade agreements. Nonetheless, policy levers such as encouraging greater ship ownership in the UK and expanding UK Export Finance tools could help capture more activity onshore and improve export visibility.

The UK's logistics efficiency also lags behind global leaders. It ranks 19th in the Logistics Performance Index (LPI), a composite measure of customs efficiency, infrastructure quality, logistics competence, and shipment timeliness. The UK's rank suggests relative inefficiencies at ports, infrastructural weaknesses, and variability in service quality. Addressing these would require a coordinated strategy across the port sector, logistics operators, and border authorities, to streamline customs, enhance port infrastructure, and integrate logistics systems digitally, particularly in the post-Brexit context, where new friction points have emerged at borders and inland clearance facilities.

In the Liner Shipping Connectivity Index (LSCI), a metric reflecting a country's integration into global shipping networks, the UK ranks 10th. While this is a relatively strong performance, it lags behind key transhipment hubs like China (1st) and Singapore (3rd). However, it should be noted that the UK's island geography, lack of a mega-hub port, and the historical dominance of gateway rather than hub-and-spoke port models impose structural limitations on its ability to match the scale and frequency of direct liner connections seen in Asian hubs. Indeed, the UK does not have a single dominant mega-hub port akin to Singapore. Instead, it operates a

decentralised network of major ports which serve different regions and cargo types, but none has the scale, centrality, or container transshipment dominance of global mega-hubs. Meanwhile, by contrast with Germany and Belgium, whose large ports like Hamburg and Antwerp are supported by dense hinterlands and well-developed intermodal systems linking to continental markets by rail and inland waterways, the UK remains more reliant on road transport, with rail playing a supporting role and the use of inland waterways more limited. This gives it relatively fewer opportunities to consolidate volumes through inland distribution networks at the same scale as its continental competitors.

Nonetheless, incremental improvements are possible. Measures such as increasing deep-water berth capacity and investing in automated handling systems could enhance connectivity. Additionally, revisiting the UK's planning regulatory system to support port expansion and enabling greater private investment in maritime infrastructure could improve both port throughput and shipping connectivity.

The UK also performs moderately on the International Transport and Insurance Costs (ITIC) indicator, ranking 16th out of the 44 countries in the index. Developed by the OECD, the ITIC measures the cost of transporting merchandise from the exporting to the importing country, expressed as a share of the value of imports (i.e. the Cost, Insurance, and Freight (CIF) / Free-On-Board (FOB) ratio). It serves as a proxy for the efficiency of a country's trade logistics, particularly the extent to which freight and insurance costs are minimised after goods are loaded for export. For the UK, this ratio rose from 3.64% in 2016 to 5.21% in 2022, suggesting a relative decline in cost-efficiency over time. By contrast, Germany, ranked 1st, maintained a lower and more stable ratio over the same period. Several domestic factors may explain the UK's middling performance, including inland transport congestion, throughput limitations at major ports, and fragmented or outdated border processing systems, all of which add friction to the export process and inflate associated costs. In addition, post-Brexit changes to customs procedures and cross-border administrative requirements have introduced further complexity and delays at UK borders, compounding these inefficiencies and raising the cost of international trade for exporters.

Modernising the fleet and unlocking capital

Fleet-related indicators remain a challenging area for the UK. Ranked 13th in fleet age, the UK's merchant fleet is notably older than that of leading countries such as Singapore and China. In terms of owned deadweight tonnage, the UK (7th) trails the scale and asset value of Greece, China, and Japan. Unlike countries with state-incentivised fleet renewal strategies, the UK depends largely on market-led decisions. This limits the pace of transformation but highlights areas for policy support. Lower scores in owned DWT and fleet age point to opportunities to attract more beneficial ownership and incentivise investment in newer, more efficient vessels. Targeted green shipping incentives, particularly those aligned with decarbonisation priorities, could help reposition the UK-owned fleet over time. While such measures are unlikely to close the structural gap with top performers, they could place the UK on a gradual upward trajectory.

Addressing workforce and institutional gaps

The UK performs relatively well on workforce-related indicators but still lags behind its peers on the Human Capital Score from UNCTAD's Productive Capacities Index. This measures the overall quality of a country's workforce in terms of education, training, and broader human development indicators relevant to economic productivity. It reflects the population's ability to acquire, apply, and update skills, which is a foundational requirement for sustaining competitiveness in sectors undergoing rapid technological and environmental transformation, such as shipping. In this dimension, the UK ranks 20th out of 44 countries, well behind leaders such as South Korea, Sweden, Finland, Germany, Australia, and Japan. These countries benefit from highly integrated education-to-employment pipelines, strong vocational and technical education systems, and national strategies that anticipate future skills demand.

Maintaining and future-proofing the UK's seafarer workforce will be essential to capitalise on the opportunities presented by technological change and the net zero transition. As roles within the shipping industry evolve towards greater use of digital technologies and environmental innovation, policies that support upskilling of the current workforce and increase the attractiveness of maritime careers to new entrants will be critical. Government commitment to preserve and potentially enhance funding for schemes such as SMarT could help ensure a stable supply of UK-based seafarers.

Increased promotion of maritime careers through national awareness campaigns may also help address persistent barriers to entry and improve visibility of the sector among younger cohorts. Recent initiatives demonstrate what can be achieved in this space. The Careers at Sea campaign, launched in 2024 by the Merchant Navy Training Board (MNTB), the UK Chamber of Shipping and the Maritime Educational Foundation (MEF), has achieved broad reach, with more than 20 million people engaged through digital channels and over 90 million impacts from its outdoor campaign.[13] Furthermore, public-private initiatives in other sectors, such as Generation Aviation, have likewise demonstrated the value of government-backed promotion in tackling structural skills shortages.

On the institutional side, the UK ranks 17th in the Business Freedom component of the index, indicating scope for regulatory improvement. Maintaining a competitive, stable, and predictable business environment is critical to sustaining investment in maritime activities. Although the UK benefits from a broadly stable framework, structural rigidities continue to constrain maritime growth. Prolonged planning processes have delayed port infrastructure upgrades and national grid connections, while fragmented governance has limited the strategic coordination needed to align maritime development with broader infrastructure and industrial policy. Furthermore, the tonnage tax regime remains a valuable asset, serving both as a fiscal incentive and a marker of long-term policy stability (see Section 4). Preserving its benefits, alongside initiatives such as the UK Shipping Concierge, will be key to reinforcing investor confidence.

[13] Merchant Navy Training Board (2025). Careers at Sea.

3.5 Country deep dives

This section examines countries that have strengthened their competitive position over the past decade and explores factors that may have contributed to these gains. Drawing on the 2014 and 2023 rankings of the Shipping Competitiveness Index, we assess policy, investment, and market developments across the four pillars: Trade, Fleet and Capital, Workforce, and Regulatory Environment and Governance.

We focus on the three largest risers within the top 20 between 2014 and 2023: China (+4), Greece (+4), and Spain (+6). Each deep dive highlights notable reforms and sectoral shifts, such as port automation and concessions, intermodal upgrades, fleet renewal, and skills initiatives, that align with improved scores and rankings. These are presented as case studies rather than definitive causal explanations, with the aim of identifying plausible enabling conditions behind each country's performance gains.

China

As a global superpower and a major hub in world freight transport, China continues to play a pivotal role in international shipping dynamics and has introduced a wide array of policy measures and targeted investments over the past decade. Since 2014, China has moved from 7th to 3rd in the composite index, indicating significant improvement in its maritime capabilities in a relatively short time span.

Large-scale capital injections into infrastructure such as the Yangshan Port in Shanghai have helped position China at the cutting edge of shipping innovation. The Yangshan Port operates as the world's largest automated container terminal, with the fourth phase of construction completed in 2017, and supports cargo handling at Shanghai Port. Adoption of wireless technology has helped increase efficiency and the volumes of freight processed.[14]

Through the One Belt, One Road (OBOR) initiative, specifically projects such as the International Land-Sea Trade Corridor (ILSTC), China has improved the connectivity and logistics of its shipping industry. The ILSTC has enhanced maritime access for inland regions via the Beibu Gulf Port in Guangxi and linked western provinces such as Chengdu to Southeast Asia and beyond through efficient rail-sea intermodal routes. From 2015 to 2020, Beibu Gulf Port witnessed a sustained annual growth rate of container throughput of more than 25%, driven in part by the accelerated construction of the ILSTC.[15] Furthermore, the project included agreed cooperation among regional customs authorities to facilitate clearance, improve supervision and promote industry development.[16] These efforts have helped reduce customs-related delays, contributing to China's improved Logistics Performance Index (LPI) score, which rose from 61 to 64.

[14] Huawei Enterprise (2018). Yangshan Port: Building the world's largest fully automated container terminal.

[15] Global Times (2025). China's Beibu Gulf Port becomes new gateway for trade with ASEAN.

[16] Xinhua News Agency (2019). China ports soar in throughput, connectivity advancements.

Fiscal incentives such as national-level subsidies for ship recycling, introduced in 2015 and since extended, have helped to renew China's shipping fleet. These subsidies encouraged the early retirement of older vessels and supported the replacement with newer, more efficient ships. To qualify for the early recycling subsidy, cargo ships were required to be 15–30 years old and passenger ships 10–25 years old. Eligible vessels included single-hull oil tankers over 600 DWT and all other coastal and inland river ships.[17]

New ships built under the scheme had a gross tonnage greater than or equal to the scrapped ship, promoting increases to ship size and capacity. Additionally, the new ships were able to use the cleaner energy option of LNG, potentially helping reduce carbon emissions and increase fuel efficiency. The benefits of the grants are reflected in the improvements to China's fleet age and value scores since 2014, with recorded increases from 82 to 94 and 95 to 98, respectively. These improvements would also have contributed to reduced unit shipping costs and enhanced international competitiveness.

China has also made efforts to increase both the size and quality of its seafaring workforce. The China Seafarer Development Plan (2016-2020) proposed higher requirements for the development of seafarers' vocational education and aimed to shift the training for seafarers away from purely theoretical learning to a practical, skills-based approach.[18] Furthermore, it would ensure the skill set of the crew aligned with the needs of shipping development such as the increased use of technology and automation. Despite a slight improvement in China's human capital score, it still ranks relatively low compared to the other nations in the study, suggesting this is a further area of development for China. Its score for Seafarer supply dropped from 100 (1st) to 91 (4th) since 2014, indicating that other countries have scaled up their crewing capacity more aggressively over the same period.

Greece

Greece is a historically prominent shipping hub, home to the world's largest owned fleet by capacity in 2023. Since 2014, it has further strengthened its position with its composite index score rising from 68 to 70, and entering the top ten of the rankings.

In the last decade, Greece has undergone substantial privatisation of its port operating companies, with vast injections of capital coming from foreign investors. A key hub in both Greek and broader Mediterranean trade networks, the Port of Piraeus saw its port authority company sell a 51% stake to Chinese shipping company COSCO in 2015, whose stake has since risen to 67%. COSCO's investment has transformed Piraeus into a major international port by modernising infrastructure, implementing advanced technologies and increasing its capacity to 7.2 million TEU as of 2022.[19] As a result, Piraeus' connectivity has substantially

[17] ICCT (2024). New central subsidies for scrapping and renewing coastal and inland river ships in China.

[18] Ministry of Transport of the People's Republic of China (2016). China Seafarer Development Plan (2016–2020).

[19] CBRE (2022). 2022 Global Seaport Review: Piraeus, Greece.

improved, with direct connections to 72 ports in 30 countries. These include major world hub ports such as Port Klang in Malaysia, Colombo in Sri Lanka and Rotterdam in the Netherlands.

As the index is country-specific, foreign direct investment (FDI) or ownership of port assets, such as COSCO's, does not directly affect China's score. The resulting modernisation and efficiency gains accrue to the host economy instead by enhancing its competitiveness as a maritime base, a dimension reflected in certain index indicators such as port connectivity and logistics performance.

A main driver of Greece's strong shipping competitiveness is the size of its fleet which increased from 250 million DWT in 2014 to 384 million DWT in 2023, representing an increase of 54%.[20] Furthermore, Greek shipowners continue to invest in a more modern and environmentally friendly fleet. Consequently, Greek shipping companies benefit from economies of scale and increased flexibility in responding to fluctuations in global trade demand.

Over the past decade, Greece has also made significant steps in optimising port-related administration through digitisation and regulatory alignment with EU frameworks. A major development was the implementation of the National Maritime Single Window (NMSW). This platform allows ship operators to submit all required port entry and exit declarations through a centralised electronic system.[21] The NMSW was launched as a pilot in 2020, aligning port clearance procedures with the rest of the EU. By eliminating manual paperwork, the system reduces delays and cuts turnaround times. As a result, it reduces administrative costs and improves delivery reliability. These reforms have translated into a substantially improved Logistics Performance Index score for the country, with its score rising from 39 (34th) in 2014 to 66 (15th) most recently.

Historically, Greece has had a high regulatory burden which has contributed to low levels of private investment for many years. This has been partially addressed by public sector digitalisation which has simplified administrative processes for firms, alongside the emergence of new investment opportunities in the green sector. Additionally, bank lending to businesses has started to increase, allowing a gradual recovery in private sector investment.[22] However, despite these advances, Greece still ranks low in Business Freedom, with a recent score of just 38 (35th), contributing to a low score of 61 (28th) in the Regulatory Environment and Governance pillar.

[20] Port Economics (2023). Greek Ports Connectivity Upgrades: Their Role in International Maritime Trade.

[21] Hellenic Coast Guard (2021). National Maritime Single Window.

[22] OECD (2023). OECD Economic Surveys: Greece 2023.

Spain

Spain's shipping industry has seen notable improvements since 2014, driven by upgrades to port infrastructure and logistics capabilities. It has risen six places in the global shipping competitiveness rankings since 2014 and currently sits in 14th, overtaking countries such as Italy, Malaysia, and Australia.

A key part of Spain's strong access to European and global markets is its position in the Trans-European Transport Network (TEN-T). This connects Spanish Mediterranean seaports with a rail corridor, linking Northern Africa and Mainland Europe through Spain. In 2018, the European Commission accepted the proposal of the Spanish Ministry of Public Works and Transport to expand the TEN-T network to include the ports of Gijon, La Coruna, Huelva, Las Palmas, Tenerife and Palma de Mallorca.[23] Strong intermodal links have boosted container traffic at ports such as Huelva and improved overall shipping connectivity.

Liberalisation of port concessions in 2014, conditioned on significant infrastructure development, attracted major foreign investment into Spain's ports.[24] For instance, COSCO became the major shareholder in the operation of ports in Valencia and Bilbao in 2017. The influx of capital has driven notable improvements in logistics efficiency and expansion of the number of destinations served by Spanish ports. These changes have supported gains in key Trade sub-indicators such as LPI and LSCI, with Spain moving from 15th to 10th and 11th to 7th, respectively.

Since 2014, Spain has seen a substantial increase in the number of its seafaring workforce, reflected by a rise from 36th to 17th for Seafarer supply, supporting an improvement in its Workforce pillar score from 45 (33rd) in 2014 to 63 (14th). Involvement in broader European initiatives such as the SkillSea project has helped with the advancement of maritime education by including packages on digital skills, green skills and leadership through innovative platforms.[25] Furthermore, collaboration with other European countries has helped to form strategies to address skills gaps and labour mobility issues.

However, despite notable advancements, Spain continues to account for only a small share of the global fleet by deadweight tonnage (DWT), which limits its overall shipping influence. This is partly reflected in a continued reliance on foreign-owned vessels. Efforts have been made to increase shipbuilding, including by Royal Decree 1071/2021 which granted aids of up to €20 million per year for the research, development and innovation in the shipbuilding sector.[26] Projects that are eligible include industrial research, technical and environmental feasibility studies and experimental development of ships. It also guarantees funding for the design and construction of zero-emission hydrogen-powered ships, incentivising shipbuilders

[23] Port Today (2018). TEN-T corridors extended to include Spanish ports.

[24] Revista Transporte (2021). Port concessions: When time is money.

[25] ECSA (2024). Skillsea Project.

[26] Sym Naval (2022). A Royal Decree grants aids of 20 million euros for R&D&I in the naval sector.

to replace their existing fleet with more environmentally sustainable vessels. Spain's fleet size has grown over the past decade. However, it still ranks 25th for owned DWT (score: 49), though this marks an improvement from 28th (42) in 2014.

Spain has recently launched the Spanish Maritime Strategy 2024-2050 to consolidate Spain as a maritime leader in Europe whilst adopting a sustainable and innovative approach. The strategy aims to ensure the maritime sector keeps up with digital progression and includes the adoption of smart ports, deployment of autonomous systems for port operation and use of blockchain technology to enhance management of supply chains.[27] Furthermore, there are plans to modernise surveillance and rescue systems and reform training in maritime academies by adding modules on advanced technology and environmental sustainability.

[27] Interseas (2024). Spain's Maritime Strategy 2024–2050: Keys and challenges of the sustainable vision of the merchant marine.

4 Tonnage tax

4.1 About tonnage tax regimes

Tonnage tax (TT) regimes have become a central feature of maritime fiscal policy in many jurisdictions, offering shipping companies an alternative to standard corporate income tax. Rather than levying tax on accounting profits, most TT systems calculate a notional profit based on a vessel's net tonnage (NT), resulting in lower compliance burdens and predictable liabilities, often resulting in lower effective tax rates.[28] These regimes were initially developed in response to the inherently mobile and global nature of the shipping industry. With vessels easily reflagged and management functions relocatable, shipping is highly responsive to tax incentives. TT regimes aim to retain economic activity domestically by offering competitive tax treatment in exchange for real operational presence. In contrast, open registries such as Panama, Liberia, and the Marshall Islands, which together account for 45% of the world fleet by DWT,[29] do not impose such requirements.

The TT concept gained widespread policy prominence in the 1990s with the introduction of the "Dutch model" in the Netherlands in 1996. This system, which taxes notional profits based on NT, became the blueprint for EU-compliant regimes under the European Commission's 1997 and 2004 state aid guidelines.[30] It was designed to promote fleet renewal, reduce compliance costs, and encourage the retention of economic activity domestically. Greece, in turn, has long operated a distinct TT regime, first codified in the 1950s and updated in 1975. This system taxes based on gross tonnage (GT) using vessel-specific rates that vary by size and age.[31]

TT regimes typically apply only to qualifying shipping income, usually limited to the core operation of seagoing vessels, while ancillary services such as port operations, freight forwarding, and logistics remain subject to ordinary corporate taxation. Designs vary significantly across countries with respect to eligibility criteria, substance requirements, and the treatment of chartered or foreign-flagged vessels. While TT regimes have helped support domestic maritime clusters, such as in the UK since 2000,[32] they have also faced criticism for eroding national tax bases and undermining cross-sectoral neutrality. Within the European Union, TT regimes are governed by the state aid framework. The European Commission requires such schemes to be flag-neutral, linked to genuine economic activity within the EU, and avoid excessive compensation. Greece's 2024 TT reforms, for instance, were eventually

[28] Merk, O. M. (2020). Quantifying tax subsidies to shipping. Maritime Economics & Logistics, 22, 517-535.

[29] UNCTADstat (2025). Share of the world merchant fleet value by flag of registration.

[30] European Commission (2004). Communication C(2004) 43 — Community guidelines on State aid to maritime transport.

[31] European Commission (2015). State aid SA.33828 (2012/E, 2011/CP).

[32] Cebr (2025). The Value of the UK Shipping Industry: A Cebr report for the UK Chamber of Shipping.

approved only after adjustments were made to ensure compliance with the EU State aid framework.[33]

In recent years, international attention on shipping tax regimes has grown, driven by OECD-led efforts to curb tax avoidance through the Base Erosion and Profit Shifting (BEPS) initiative and the introduction of global minimum tax rules under Pillar Two. While shipping income is largely exempt via the International Shipping Income (ISI) exclusion, the exemption only applies if the strategic and commercial management of vessels takes place in the same jurisdiction where the income is reported.[34]

Under the UK's multinational top-up tax regime, income from international shipping and associated costs are excluded from the effective tax rate calculation, provided this management condition is met. This means that, broadly speaking, UK shipping income under the tonnage tax system can continue to benefit from the ISI exclusion, helping preserve its competitive position.[35] Meanwhile, Singapore, historically reliant on incentive-based schemes such as the Maritime Sector Incentive (MSI), has introduced an NT-based alternative to better align with global standards.[36]

4.2 Tonnage Tax in the UK

In July 2000, the UK Government introduced the Tonnage Tax as a new optional tax regime for the UK Shipping Sector. For the companies which opt in to using the TT regime, a fixed level of 'profit' which is subject to Corporation Tax is calculated based on a vessel's net tonnage and the number of days it is operational within the tax year. A decreasing profit rate is applied for higher tonnage brackets. Therefore, as is the case for most tonnage tax regimes, in some circumstances it is possible for a company which has opted into the UK TT regime to have to pay Corporation Tax to the UK Exchequer despite making a loss.

As discussed above, the regime is attractive for both pecuniary and planning reasons. For the former, participating companies typically face net tax liabilities far lower than they would have under the standard Corporation Tax regime, with the proviso that they are profitable, thereby increasing flexibility in company financing options. For the latter, the regime provides certainty, with companies able to determine the level of tax payable at any particular time. This certainty is reinforced by HMRC's established approach to administering the regime, offering clear guidance on liabilities and compliance requirements. The regime also confers reputational

[33] European Commission (2024). Commission welcomes Greece's commitment to bring its tonnage tax scheme in compliance with State aid rules.

[34] OECD (2025), Tax Challenges Arising from the Digitalisation of the Economy – Consolidated Commentary to the Global Anti-Base Erosion Model Rules (2025): Inclusive Framework on BEPS, OECD/G20 Base Erosion and Profit Shifting Project, OECD Publishing.

[35] HMRC (2025). Multinational Top-up Tax and Domestic Top-up Tax.

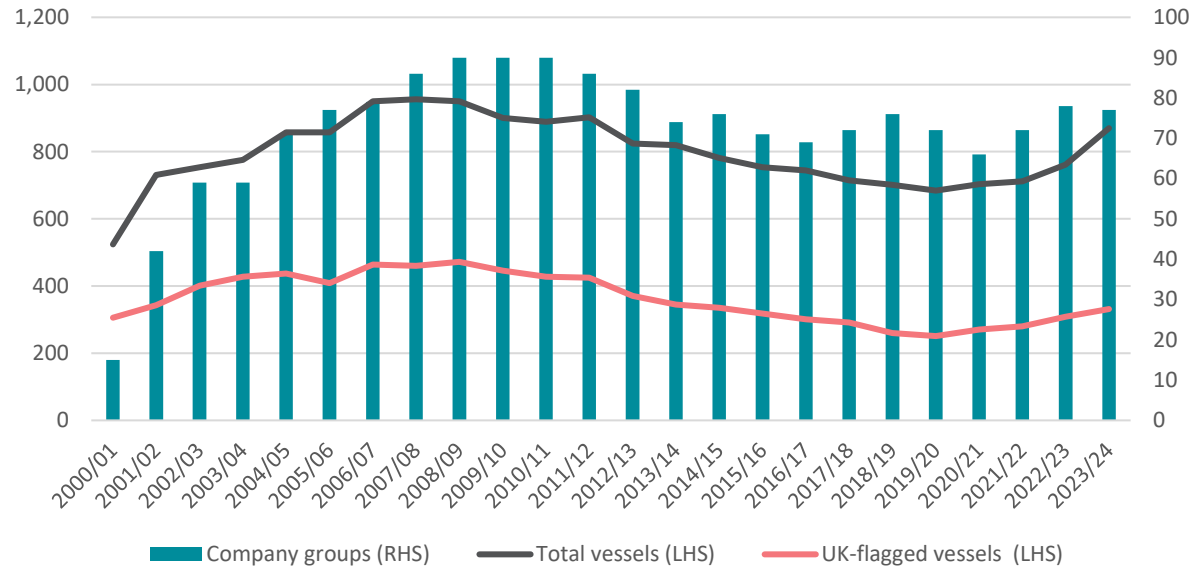
[36] KPMG (2024). Tax alert: Introduction to the Alternative Net Tonnage Basis of Taxation in Singapore.

advantages, with companies able to operate from London, a globally recognised maritime centre, benefiting from the prestige associated with the UK's corporate environment.

Alongside supporting funding for seafarer training, the objective of the TT regime in the UK was to reverse the steady decline in UK-owned commercial vessels; with a strong relationship between international trade, employment, and shipping, the UK's continuing prosperity is partly tied to the size of its shipping fleet. It is widely perceived that the introduction of the regime was a strong contributing factor in the marked uptick in the size of the shipping fleet and the net value of trade in shipping services.

In 2005, the House of Commons Transport Select Committee noted that "The Tonnage Tax regime has led to an increase in the number of ships on the UK register and a small increase in the UK owned fleet."[37] In 2011, the Office for Tax Simplification (OTS)[38] argued for the regime to be maintained to allow the UK shipping industry to compete effectively, also noting that "If Tonnage Tax were to be abolished there is a danger that, in a highly mobile industry where shipping companies can migrate from the UK and register their ships in foreign jurisdictions at short notice, companies would abandon the UK." Figure 10 shows the yearly number of company groups, vessels, and UK-flagged vessels in the regime since its inception.

Figure 10: Company groups, vessels, and UK-flagged vessels in the UK TT regime, 2000 to 2023



Source: DfT

[37] House of Commons Transport Select Committee. (2005). 'Tonnage Tax: Second Report of Session 2004-05'.

[38] Office for Tax Simplification (2011). 'Review of tax reliefs, Final Report'.

Recent reforms in the UK

Following the UK's exit from the EU, at the Autumn Budget 2021 the UK government announced that it would reform the UK's Tonnage Tax regime "to ensure that the UK shipping industry remains highly competitive in the global market".[39] The reforms intended to have a positive impact on the UK shipping industry through changes to make it easier to join the regime and incentivise the use of the UK flag.

The UK government implemented these reforms in various stages, starting with the Finance Act 2022. The first set of reforms, which took effect on 1 April 2022, reduced the lock-in period for Tonnage Tax participants from ten to eight years and removed the vessel registration rules regarding the number of EU/EEA flagged vessels within Tonnage Tax companies/groups, whilst explicitly recognising vessels being flagged to the UK as an optional but influential indicator within the Tonnage Tax regime's 'strategic and commercial management' test. Investment in research and development in the UK on clean energy and green technologies was also recognised as a material consideration for the 'strategic and commercial management' test.

In 2023, the UK government opened an election window for the first time in 18 years, making it possible for shipping companies that had not previously elected to join the Tonnage Tax regime to enter. The window was open for 18 months from 1 June 2023, enabling companies to take advantage of reforms made to the regime which took effect the previous year (e.g., increased administrative flexibility and the withdrawal of the registration and flagging rules introduced in 2005 as an EU/EEA requirement). Moreover, from 1 April 2024, the UK government permitted third-party ship management companies to join the regime and raised the limit on capital allowances to £200 million for lessors of ships into the regime.[40]

While the competitiveness of the UK regime is considered to be broadly in line with its main competitors, a nuance of the UK regime is the training requirement associated with the scheme. As a condition of acceptance into the UK Tonnage Tax Scheme, companies must agree to provide training for seafarers. They are required to find or fund places for an agreed number of trainees (cadets or ratings) according to the size of their fleet and the number of seafarers they employ. The ratio, broadly in place since the introduction of Tonnage Tax in 2000, has been indicated by some foreign companies with large fleets as a limiting factor to join the UK scheme due to restricted berth availability, especially on many vessel types. This means that too many training berths are often required, causing some prospective companies that might otherwise have joined the scheme not to elect into it.

[39] HM Revenue & Customs (2021). Tonnage Tax reform. https://www.gov.uk/government/publications/tonnage-tax-reform/tonnage-tax-reform

[40] HM Treasury (2023). 'Spring Budget'.

4.3 Cross-country comparison

Fundamental differences between regimes in units, currencies, thresholds, discounts, and exemptions complicate efforts to benchmark fiscal competitiveness across countries. Table 9 illustrates a variety of regimes, including the UK and other key shipping jurisdictions: Singapore, the Netherlands, Norway, Denmark, Dubai, Hong Kong, Cyprus, Greece, Italy, France, and Panama. Most of these jurisdictions, excluding Panama and Dubai, apply layered, regressive tonnage tax structures based on either net tonnage (NT) or gross tonnage (GT).

Half of the countries, namely the UK, Singapore, the Netherlands, Denmark, Italy, and France, apply a system in which a notional daily taxable profit is first calculated using a tonnage schedule and then subjected to the prevailing Corporation Tax (CT) rate. Norway, Hong Kong, Cyprus, and Greece apply a tonnage-based fee structure instead. The Greek system is unique within the sample in that it incorporates both tonnage and vessel age, applying lower rates to both newer (0–4 years) and older ships.

Table 9: Side-by-side comparison of the tonnage tax regimes of key shipping jurisdictions

Jurisdiction	TT?	Headline Taxable Rates	Regime characteristics[41]
United Kingdom	Yes	Daily taxable notional profit per 100 NT: • £0.60 (≤1,000 NT); • £0.45 (1,001–10,000); • £0.30 (10,001–25,000); • £0.15 (>25,000), taxed at 25% CT.	Eligible for ships ≥100 GT. Requires UK-based strategic/commercial management. Since April 2024, third-party ship managers can opt in (lower rates apply).
Singapore	Yes	Daily taxable notional profit per 100 NT: • S$0.90 (≤1,000 NT); • S$0.60 (1,001–10,000); • S$0.30 (>10,000), taxed at 17% CT.	Replaces MSI for qualifying entities. Lower schedule for 'green' ships, i.e. ships with conversion factor (CF) value < 2 or electric ships. Separate registration fees.
Netherlands	Yes	Daily notional taxable profit per 1,000 NT: • €9.08 (≤1,000 NT); • €6.81 (1,001–10,000); • €4.54 (10,001–25,000); • €2.27 (25,001-50,000); • €1.77 (>50,000), taxed at 19% CT.	Subject to substance/local management test. Applies to, e.g., international transport of goods/passengers; offshore supply ships; towing/assistance at sea; sea-dredging if >50% of activity is seaborne transport.

[41] For further information on the respective regimes: Tonnage Tax Manual by HMRC; Introduction to Alternative Net Tonnage Basis of Taxation in Singapore by KPMG; Calculation of taxable tonnage-based profit by NL flag; Denmark – Taxes on corporate income by PwC; Italy – Taxes on corporate income by PwC; French International Register (RIF) by Ministère de la Mer; The Norwegian Special Tax System for Shipping 2018-2027 by ESA; Issuing navigation license for commercial ship by UAE Ministry of Energy & Infrastructure, Annual Tonnage Charge by the HKSAR Marine Department; Guide to Cyprus Tonnage Tax System (TTS) by Maritime Cyprus; State aid SA.33828 (2012/E, 2011/CP) by the European Commission; and Administration Fees by the Panama Marine Authority.

Denmark	Yes	Daily notional taxable profit per 100 NT: • DKK 11.76 (≤1,000 NT); • DKK 8.44 (1,001–10,000); • DKK 5.05 (10,001–25,000); • DKK 3.32 (>25,000), taxed at 22% CT.	Management in Denmark required. Ancillary income limits below 50%. Chartering rules apply. Scheme approved under EU state aid.
Italy	Yes	Daily notional taxable profit per NT: • €0.0090 (≤1,000 NT); • €0.0070 (1,001–10,000); • €0.0040 (10,001–25,000); • €0.0020 (>25,000), taxed at 24% CT.	Eligible for ships ≥100 NT; aligned with EU state aid rules.
France	Yes	Daily notional taxable profit per 100 NT: • €0.93 (≤1,000 UMS); • €0.71 (1,001–10,000); • €0.47 (10,001–25,000); • €0.24 (>25,000), taxed at 25% CT.	Eligible for GT ≥50 UMS vessels used for transporting passengers/goods, towing on the high seas, sea rescue or other maritime assistance. French-based strategic/commercial management required.
Norway	Yes	Daily fee per 1,000 NT: • NOK 9 (≤1,000 NT); • NOK 18 (1,001–10,000); • NOK 12 (10,001–25,000); • NOK 6 (>25,000).	Compliant with EEA rules; substance and management requirements in Norway. Environmental reductions available.
Dubai (UAE)	Registry fee, no TT	Flat rate of AED 2 per GT annually.	Mandatory fee on UAE-flag vessels; standard registration/enrolment requirements apply.
Hong Kong (China)	Yes	Rate schedule (capped at HK$77,500): • HK$1,500 (≤1,000 NT); • HK$3.50 per NT (1,001–15,000); • HK$3.00 per NT (>15,000).	Annual tonnage charge system (international shipping profits exempt from CT). Separate ship registration fees apply.
Cyprus	Yes	Rate schedule per 100 NT: • €36.50 (≤1,000 NT); • €31.03 (1,001–10,000); • €20.08 (10,001–25,000); • €12.78 (25,001–40,000); • €7.30 (>40,000).	Applies to shipowners, charterers, and qualified ship managers. EU-approved scheme. Eligible for seagoing vessels certified under IMO/ILO rules, with some explicit exclusions.

Greece	Yes	Rate schedule per GT: • $0.420 (0–4 years); • $0.752 (5–9); • $0.737 (10–19); • $0.697 (20–29); • $0.539 (≥30). With coefficients applied based on vessel GT: • 1.2 (100–10,000 GT); • 1.1 (10,001–20,000); • 1.0 (20,001–40,000); • 0.45 (40,001–80,000); • 0.2 (>80,000).	Constitutionally protected; full exemption for ships built domestically and Greek-flagged in first six years. Applies to, e.g., cargo vessels, tankers, steel hull vessels for dry or liquid cargo that sail to/between foreign ports, passenger vessels, and drilling platforms.
Panama	Registry fee, no TT	Flat rate of $0.10 per NT annually.	Discounts available for new vessels under the Panamanian ship registry.

Comparative assessment of TT regimes

Despite the inherent limitations of cross-country comparison, we carried out an indicative benchmarking exercise to assess the UK regime's relative competitiveness vis-à-vis other leading shipping jurisdictions. It should be noted that the exercise focuses on the pecuniary tax liabilities, whereas in practice the relative attractiveness of a tonnage tax regime also depends on its qualifying conditions and requirements, such as flagging, management location, crewing, or training obligations. The UK regime has no formal flag requirement, though operating under the UK flag can still support evidence of UK management.

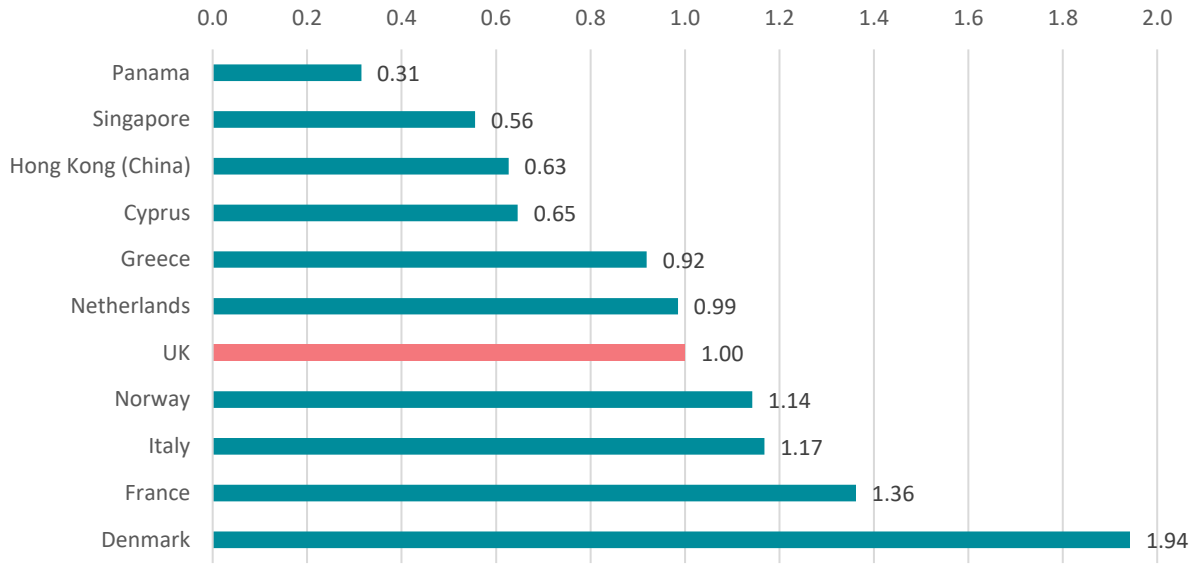
To quantify differences across regimes, we considered two hypothetical entities: a company that owns and operates a single 20-year-old 50,000 NT vessel, and another that owns and operates a fleet of twenty vessels: five ships of 50,000 NT, five of 30,000 NT, five of 15,000 NT, and five of 5,000 NT. The first ten are assumed to be younger than 4 years, while the latter ten are assumed to be between 20 and 29 years old. Both entities are assumed to have all ships in service for 365 days per year. We then modelled the resulting annual tax liabilities under each regime, converted these into pounds sterling, and compared the results relative to the UK.

While neither Panama nor Dubai operates a formal tonnage tax regime, Panama is included in the exercise as a widely used open registry offering a minimal-cost alternative to more regulated systems. Dubai's flat GT-based fee, by contrast, is a registry fee applicable to UAE-flagged vessels, not a substitute for corporate income tax, making it less relevant for international benchmarking purposes.

Figure 11 presents the indicative results for the company with a single vessel, with projected annual liabilities ranging from 0.31 times those of the UK in Panama to 1.94 times those of the

UK in Denmark.[42] The UK falls near the middle of the group, with a higher estimated liability than Panama, Singapore, Hong Kong, Cyprus, Greece, and the Netherlands, but slightly below that of Italy and France, two of its major European peers.

Figure 11: Estimated tax liabilities relative to the UK for a company operating a single 50,000 NT vessel



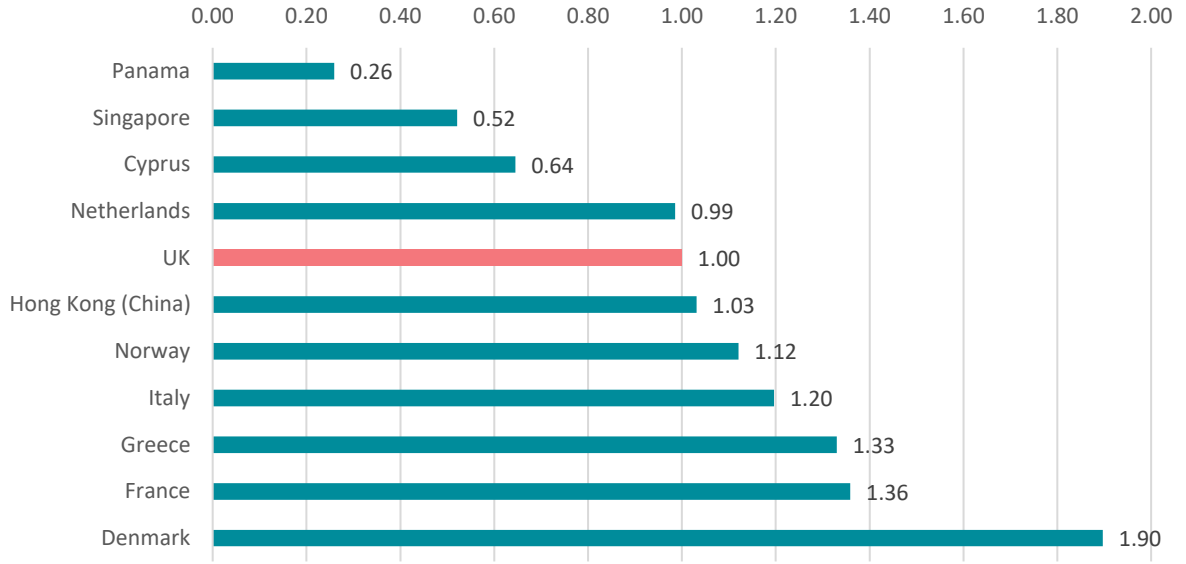
Source: Cebr analysis

Figure 12 shows the indicative results for the company operating a fleet of twenty vessels (five ships of 50,000 NT, 30,000 NT, 15,000 NT, 5,000 NT each). At this scale, the ranking shifts slightly due to differences in regressivity between regimes. Panama, which applies a flat rate of $0.10 per NT, remains the most competitive, at 0.26 times the UK's annual liabilities.

Singapore retains its place at 2nd, as the lowest rate bracket in its regime starts at 15,000 NT instead of 25,000 NT, as is the case for many of its peers. Hong Kong drops three places to 6th due to its regime being relatively more competitive for larger rather than smaller ships, as the liabilities per ship are capped at HK$77,500. Greece, with its flat $-per-GT regime, moves down to 9th.

[42] For Greece, which applies a GT-based tonnage tax, NT has been converted to GT using a ratio of 1.8 GT per NT. Accordingly, a 50,000 NT vessel is assumed to be 90,000 GT for the purposes of tax liability estimation. It should be noted that no single universal GT/NT conversion exists, and actual values vary by ship type.

Figure 12: Estimated tax liabilities relative to the UK for a company operating a fleet of twenty vessels



Source: Cebr analysis

However, some caveats apply. First, the hypothetical entities considered are highly stylised, and the figures presented should thus be interpreted as indicative estimates. Second, to maximise cross-country comparability, the **analysis does not account for the plethora of special exemptions, discounts, or dedicated tax planning strategies available in many jurisdictions**. For instance, Greece offers a full exemption for ships that are both domestically built and Greek-flagged within their first six years, making its regime more competitive in practice. Similarly, Singapore offers a lower schedule for 'green' ships.

4.4 Cruise competitiveness

While the Shipping Competitiveness Index includes a measure of water passenger transport exports, this indicator largely reflects ferry operations and does not fully account for cruise activity. Cruise services are generally excluded from standard trade statistics due to their offshore and roundtrip nature, which means the UK's competitiveness in this segment is likely understated in conventional metrics.

The UK is one of the global leaders in the cruise segment, serving as the corporate and operational base for major international cruise operators. In 2023, the UK and Ireland together constituted the world's third-largest source market for cruise tourism, with nearly 2.3 million passengers embarking on cruises, behind only the United States (16.9 million) and Germany (2.5 million).[43]

A key enabler of the UK's cruise competitiveness is its Tonnage Tax regime. This framework enhances fiscal predictability and cost-efficiency for cruise companies headquartered in the

[43] CLIA (2024). 2024 Global Source Passenger Market Report.

UK, incentivising fleet deployment, associated investment, and ancillary economic activity. Carnival Corporation, for example, has seen its gross tonnage under the regime more than quadruple since 2002, while its UK shore-based staffing has more than doubled to over 1,900. Additionally, more than 1,800 UK residents served on its tonnage tax-qualified vessels as of late 2024.[44]

In addition to its role as a major passenger source market and a corporate base, the UK also hosts key operational infrastructure for the cruise industry. Southampton, in particular, is one of Europe's busiest cruise ports and a major embarkation hub for itineraries across the North Atlantic and Mediterranean. In 2024, UK cruise ports collectively recorded an all-time high 3.1 million passenger embarkations and disembarkations, out of which 2.7 million (87%) were handled by Southampton, while 75,000 (2%) passed through Dover.[45]

The sector supports a wide range of ancillary services, including port handling, ship agency, hospitality, entertainment, and provisioning, contributing to the scale and competitiveness of the broader maritime cluster through spillover effects. In 2024, cruise activity at the Port of Southampton generated over £1 billion for the local and regional economy through employment, procurement of goods and services, and the spending of passengers and crew.[46]

The UK also plays a role in shaping cruise regulation and decarbonisation through its maritime governance framework. As the sector comes under increasing scrutiny for its environmental impact, the ability of countries to influence standards and promote cleaner technologies will become a more salient dimension of competitiveness in the years ahead. This is a pillar where the UK already possesses a competitive advantage, as evidenced by its Regulatory Environment and Governance score of 89, 4th among the sample countries.

4.5 Implications for competitiveness

The UK's tonnage tax regime remains a critical lever for competitiveness, particularly in attracting beneficial ownership and anchoring cruise operators and other shipping companies in the UK. The current regime is considered broadly competitive in comparison with main peers, providing a stable and predictable tax environment for the industry. Recent reforms, such as easing entry into the regime, extending eligibility to third-party ship managers, and recognising investment in green technologies as a material consideration, have further strengthened the UK's offer. Forward-looking and stable policy will need to balance maintaining fiscal competitiveness with aligning the regime to decarbonisation and wider strategic objectives, ensuring that incentives promote both fleet renewal and the adoption of cleaner technologies. This would enable the UK to maintain and strengthen its position as a centre for shipping headquarters and high-value maritime services.

[44] Carnival Corporation (2024). Our Approach to UK tax.

[45] Department for Transport (2024). Sea passenger statistics: overview 2024.

[46] Associated British Ports (2025). Over £1 billion generated for Southampton from its booming cruise industry.

At the same time, the training obligations tied to the UK tonnage tax represent both a challenge and an opportunity. While the training requirements can be challenging to meet for some operators depending on the sector, the policy ensures that fiscal support is linked to skills development, reinforcing the domestic workforce pillar of competitiveness. Adjustments to improve flexibility, such as recognising alternative training models, could make the scheme more attractive without diluting its core objective. Currently, companies must train one UK cadet per 15 officer positions, but many face difficulties securing sufficient accommodation, berths, and sea-time placements. These logistical challenges limit broader participation and constrain cadet numbers. A more flexible, outcome-based approach, such as enabling shared placements across firms, recognising alternative training investments (e.g. additional simulator use), or continuing to improve coordination between training providers and industry, could ease compliance while still expanding the domestic skills pipeline. This would support greater adoption of the regime and help address long-term seafarer shortages.

By making targeted refinements to tonnage tax policy while maintaining stability, the UK can enhance its attractiveness to international shipowners and operators, while concurrently reinforcing long-term competitiveness through human capital and sustainability dimensions.

5 Decarbonisation

5.1 Decarbonisation of the shipping industry

The decarbonisation of shipping is not only an environmental imperative but a growing axis of competitiveness among maritime nations. As international regulation tightens and low-emission technologies evolve, countries that can align policy ambition with industrial capability and port infrastructure will gain a strategic edge. This section assesses the landscape of decarbonisation initiatives across major maritime economies and considers their implications for shipping costs, innovation leadership, and trade positioning.

While shipping is responsible for around 2.3% of global CO2 emissions, it is the greenest and most energy-efficient mode of transport: per tonne-km, shipping emits 2–35 grams of CO2, compared to 7–81 from railway transport, 59–272 from road transport, and 435–1,925 from air transport.[47] The transport sector as a whole accounted for 23% of global energy-related CO_2 emissions in 2019, according to the IPCC's Sixth Assessment Report. Within this, road transport was responsible for 70% of direct transport emissions, aviation for 12%, and shipping for 11%.[48] Although shipping's share of transport emissions is smaller than that of other modes, it still has a critical role to play in driving decarbonisation.

Recognising this, the International Maritime Organization (IMO) has set a net zero target for the industry to achieve 'by or around 2050'. This transition is being shaped by an evolving regulatory environment that is impacting the competitiveness landscape across countries, ports, and maritime actors. To support the transition, the IMO has provided technical guidelines; from 1 January 2023 onwards, all ships above 5,000 GT have been required to calculate their attained Energy Efficiency Existing Ship Index (EEXI) and collect data for the reporting of their annual operational carbon intensity indicator (CII) and CII rating. These measures aim to reduce carbon intensity by at least 40% by 2030 compared to 2008.[49]

However, the competitiveness implications of these guidelines differ across countries and shipping companies depending on vessel age, retrofit capacity, and access to alternative fuels. Older fleets concentrated in certain countries may struggle to meet the performance benchmarks without expensive retrofits. Furthermore, flag states with weaker enforcement or slower ratification risk reputational damage, raising the cost of capital and insurance for shipowners using those registries.

[47] Clarksons (2025). Decarbonising shipping.

[48] IPCC (2019). Sixth Assessment Report. Chapter 10: Transport.

[49] IMO (2023). EEXI and CII - ship carbon intensity and rating system.

Regulatory overlap

Recent developments, notably the expansion of the EU and UK (see Section 5.2) Emissions Trading Systems (ETS) to shipping and the upcoming IMO Net-Zero Framework, are creating overlapping regulatory regimes.

Firstly, the EU's Emissions Trading System (ETS) was expanded from January 2024 to cover CO_2 emissions from ships over 5,000 GT, regardless of their flag. The system covers 50% of emissions from voyages starting or ending in the EU and 100% of emissions from intra-EU voyages. A phase-in transition period is in place, with companies only having to surrender allowances for 40% of their reported emissions from 2024 in 2025, 70% of their emissions from 2025 in 2026, and finally 100% of their emissions from 2026 in 2027 and similarly thereafter. From 2026, methane and nitrous oxide emissions will also be included.[50]

As the EU—accounting for 14.7% of global GDP[51]—is a crucial market for both global exports and imports, home to leading shipping companies and ports, and a strong regulatory influence on the rest of world, this policy has had important implications for the shipping industry. Companies have responded to the increased costs with ETS-related surcharges to freight rates as well as with operational changes, such as assigning more efficient vessels for EU service and older vessels instead rerouted to outside the ETS.[52] For example, Maersk's Q2 2025 EU ETS surcharge on US–Rotterdam freight was c. €59 per 40-foot container.[53]

In parallel, the IMO has also taken steps to adopt a global carbon pricing mechanism. The Net-Zero Framework, set to be formally adopted in October 2025, was approved in April 2025 and will apply to ships over 5,000 GT from 2027. These vessels will need to meet tiered GHG Fuel Intensity (GFI) targets. Under the scheme, ships that exceed the emission targets must purchase remedial units (RUs), and conversely those that emit less than the targets generate surplus units (SUs) which can subsequently be traded on a centralised marketplace.[54] This system will run in parallel with the EU and UK ETSs, leading to shipping companies having to navigate multiple sets of carbon pricing legislation simultaneously.

This dual regime introduces both compliance complexity and potential distortion in trade routes and flagging behaviour:

- Ports outside the EU may gain a comparative advantage as operators seek to avoid ETS exposure at least in the short run, diverting traffic away from EU ports.

[50] European Commission (2025). Reducing emissions from the shipping sector.

[51] Eurostat (2025). Key figures on the EU in the world. 2025 edition.

[52] Xinhua and Baltic Exchange (2025). International Shipping Centre Development Index Report.

[53] Lindner Logistics (2025). EU ETS Shipping Surcharge & FuelEU Maritime Penalties 2025 Guide.

[54] SFOC (2025). IMO Approves First-Ever Global Carbon Pricing for Shipping.

- Regulatory fragmentation could disadvantage companies operating across regimes (e.g. navigating both EU ETS and IMO markets), leading to market distortion, administrative burden and cost duplication. Shipping companies must now develop compliance strategies that optimise cost across two systems, potentially favouring large firms with better resources and disadvantaging smaller players.

Without a more harmonised regulatory landscape and closely aligned regional regimes, the risk of fragmented decarbonisation efforts may reduce efficiency, hinder global competitiveness, and create uneven incentives. While the IMO Net-Zero Framework aims to provide a global baseline, it remains uncertain whether regional schemes such as the EU and UK ETSs will be withdrawn once the framework becomes operational. Both have mechanisms to review their systems in light of global developments, but current signals suggest they are more likely to continue in parallel, given the revenues they generate and their role in supporting domestic policy objectives, even if some consolidation or alignment were possible in the longer term.

Technology, fuels and industrial capacity

The ongoing decarbonisation efforts of the shipping industry fall into four broad categories:

1. **Alternative fuels**

The introduction of alternative fuels enables lower emissions per voyage. The main alternative fuels are LNG, methanol, biofuels (e.g. hydrotreated vegetable oil, or HVO, and fatty acid methyl esters, or FAME), ammonia (NH_3), hydrogen, and electrification. LNG is currently the most widely used transitional fuel, especially with the potential deployment of bio-LNG, though its long-term sustainability depends on tackling methane slip (unburned methane emissions) that reduce its overall GHG advantage.[55] Methanol has seen a growing number of vessel orders and can be used with dual-fuel engines.[56] Biofuels can be blended into existing engines with limited retrofitting, though long-term availability of sufficient quantities is uncertain.[57] For short-sea shipping or ferries, various hybrid solutions such as electrification,[58] methanol,[59] and hydrogen,[60] are being deployed, depending on vessel size, geography, fuel availability, and route distance.

[55] Lloyds' Register (2025). LNG's critical role in shipping's energy transition revealed in LR's latest 'Fuel for Thought' report.

[56] DNV (2024). Energy Transition Outlook 2024. Maritime Forecast to 2050.

[57] Lloyd's Register (2025). Marine Biofuels - Alternative Shipping Fuel.

[58] Freight Business Journal (2025). Power deal marks first phase for Dover-Calais electrification.

[59] Wärtsilä (2023). Wärtsilä solutions chosen for world's first methanol fuelled hybrid RoRo vessels.

[60] Samskip (2024). Samskip Advances Zero-Emission Shipping, Partnering With TECO 2030 Retrofitting Samskip's LNG Vessel Samskip Kvitnos With Hydrogen-Powered Fuel Cells.

The current operational fleet of alternative-fuel vessels stood at 1,860 vessels worldwide at the end of 2024. Combined with already ordered vessels, this amounts to 3,597 ships, which represent around 4.8% of all vessels in service and on order.[61] In gross tonnage (GT) terms, the alternative fuel-capable fleet totalled 142.9 million GT in June 2025, representing 8.4% of global capacity.[62]

Nuclear propulsion, particularly via Small Modular Reactors (SMRs), is also emerging as a potential zero-emission option, offering long operational lifespans and reduced reliance on conventional fuels. For the UK, its adoption could bring significant benefits if suitable regulatory frameworks are established and public confidence in the technology is achieved.[63]

2. **Energy efficiency technologies**

Energy efficiency technologies, such as air lubrication systems, wind-assisted propulsion systems (WAPS), and waste heat recovery aim to improve fuel efficiency and provide fuel savings. These systems are increasingly critical for meeting regulatory requirements on emissions intensity and for maintaining competitiveness as fuel prices and carbon costs rise.

3. **Digital optimisation**

Digitalisation and operational improvements, such as voyage optimisation, autonomous navigation and monitoring systems, can minimise fuel use, optimise routing, and improve safety. These measures can deliver emissions reductions at relatively low cost, while also enhancing operational efficiency and compliance monitoring.

4. **Shore power**

Shore power (also known as onshore power supply (OPS) or cold ironing) allows vessels to switch off auxiliary engines while at berth, eliminating local emissions and significantly reducing noise. This can reduce port-related externalities such as air pollution, thereby lowering the risk of regulatory penalties, facilitating access to ports with stringent environmental requirements, and strengthening the business case for calling at such ports. However, widespread adoption is heavily dependent on grid connection availability, sufficient grid capacity, cost competitiveness, and the standardisation of technical specifications across ports and vessel types.

The uptake of these technologies and fuels is not only a matter of environmental compliance but also one of long-term competitiveness:

- **Industrial capacity as a differentiator:** Countries with advanced shipbuilding and retrofitting industries such as Norway, South Korea, Japan, and China are better

[61] Lloyd's Register (2025). Alternative-fuelled ship orders grow 50% in 2024.

[62] Clarksons Research (2025). World Fleet Monitor. Volume 16, No. 6.

[63] Lloyd's Register (2024). Nuclear propulsion could transform maritime with more reliable, emissions-free and longer-lived ships.

placed to lead the decarbonisation transition.[64] Norway, in particular, benefits from mature green shipyards, government-backed export finance, high maritime R&D spending, and widespread use of electric ferries supported by effective shore power connections and sufficient grid capacity to enable their operation.[65]

- **Dependency risks for smaller players:** Maritime nations with limited manufacturing capacity risk becoming dependent on foreign technologies and fuel supplies, increasing costs and reducing strategic autonomy. This could hinder their ability to compete on cost or environmental performance. However, global interest in green corridors offers a strategic entry point. By positioning themselves as pilots for OPS (shore power) or biofuel corridors, and leveraging concessional international finance, these smaller nations can bypass capacity constraints in select routes.[66]
- **Fuel access and bunkering infrastructure**: Countries with secure access to low-carbon fuels, either through domestic production or import readiness, will enjoy cost advantages and greater route flexibility. Lack of such infrastructure may lock others into transitional fuels for longer, raising long-term regulatory risks. National regulatory frameworks, underpinned by robust safety standards for alternative fuel bunkering, are essential to enable scalable uptake. The Port Readiness Level (PRL) framework is used to assess a port's capability to handle alternative fuel bunkering safely and at scale. Using this framework, the Port of Rotterdam has established a leading position, having already achieved full implementation for LNG and near-full accommodation for methanol. Following a recent ammonia bunkering pilot, Rotterdam's PRL for ammonia increased from 6 to 7, signalling project-level readiness for operational ammonia bunkering under established safety protocols.[67]

5.2 UK Maritime Decarbonisation Strategy

The UK's Maritime Decarbonisation Strategy, published in March 2025, contains a comprehensive overview of the country's efforts to push for a more environmentally friendly future of shipping.[68] To support decarbonisation, the UK Government has committed to a further £30 million of funding through the Clean Maritime Demonstration Competition (CMDC) to the UK Shipping Office for Reducing Emissions (UK SHORE), a £206 million R&D programme launched in 2022. Out of the total, £80 million has been directed to high technology readiness level (TRL) research through the Zero Emission Vessels and

[64] Stargardt, M., Kress, D., Heinrichs, H., Meyer, J. C., Linßen, J., Walther, G., & Stolten, D. (2024). Global Shipyard Capacities Limiting the Ramp-Up of Global Hydrogen Transport.

[65] OECD (2017). Peer review of the Norwegian shipbuilding industry.

66 Centre for Maritime Economy and Connectivity (2024). Green Shipping Corridors: Charting Zero-Emission Maritime Trade.

[67] Port of Rotterdam (2025). Port of Rotterdam takes important step in making shipping more sustainable: pilot prepares port for safe bunkering of ammonia.

[68] Department for Transport (2025). Maritime decarbonisation strategy.

Infrastructure (ZEVI) competition, with an emphasis on battery electric vessels, shore power technologies, and alternative fuels. Most of the remainder has supported either (1) the design, development, testing and deployment of technology or (2) economic and technical feasibility studies.[69]

Beyond environmental goals, the strategy's success will be judged by how well it strengthens the UK's competitive position as a maritime nation through regulatory leadership, port attractiveness, innovation capacity, and industrial opportunity.

The strategy consists of five key policy measures:

1. **Fuel and technology regulation**:

The UK will regulate fuel use by pushing for a global GHG intensity fuel standard at the IMO alongside domestic regulation of maritime technologies, fuels, and energy sources. The Government is advocating for a Well-to-Wake (WtW) lifecycle approach, underpinned by strong sustainability criteria and flexible compliance mechanisms to incentivise over-performance. However, several challenges persist, including uncertainty over which fuels are best suited to different vessel types, supply constraints, and limited coordination across maritime subsectors. The government will formally consult on their approach to regulation from 2026.

An important element would be the creation of regulatory frameworks to ensure the safe use of alternative fuels at UK ports, helping to manage operational risks and reduce insurance costs. Complementary measures could include reviewing the tax treatment of alternative fuels to improve cost competitiveness. Industry stakeholders have highlighted a removal of VAT on electricity for commercial vessel consumption as a potential option.

2. **Carbon pricing integration**

Alongside international engagement, the UK has announced that it intends to extend its domestic Emissions Trading Scheme (ETS) to cover maritime from 1 July 2026, applying to vessels over 5,000 GT operating between UK ports. At the international level, the UK is championing the introduction of a global maritime GHG levy at the IMO, ideally paired with the global fuel standard. These measures aim to provide long-term price signals and investment certainty. To avoid double counting or undue burden on operators, the UK is committed to ensuring coordination between domestic and international schemes, though companies may still need to comply with both systems concurrently. However, stakeholders stress that the UK must demonstrate it can deliver on this regulatory alignment in practice, as this is not yet evident. Should it fail to do so, it risks undermining the competitiveness of its shipping sector. Furthermore, the UK plans to include emissions at berth from international shipping within its ETS scope, creating a potential mismatch and risking market distortion.

Future decisions will need to be sequenced carefully to avoid premature overlap between the IMO Net-Zero Framework, EU ETS, and the UK ETS, which could otherwise duplicate costs

[69] Frontier Economics (2025). Evaluation of UK SHORE.

for operators. In an optimal situation, the IMO scheme would be the sole and comprehensive demand-driver for shipping's decarbonisation.

3. **Zero-emission berthing**

The UK will consider a requirement for zero (or near-zero) GHG emissions from vessels while at berth. Ports represent one of the most emissions-intensive nodes in the maritime value chain, with nearly half of UK domestic maritime GHG emissions (excluding inland waterways) arising from vessels at berth. A formal consultation is planned for 2026 to explore the introduction of requirements mandating zero or near-zero GHG emissions while vessels are docked, potentially through the adoption of Onshore Power Supply (OPS) or other emissions-abating technologies.

Delivery is constrained by long electricity connection times and grid capacity issues, which remain a key barrier to port decarbonisation. For example, Wightlink's electrification of its Portsmouth–Isle of Wight ferry has been held back by a lack of shore power because a critical grid connection that may not be ready until 2037 has yet to be secured.[70] Additionally, a T&E–DNV study shows that just 4 % of the OPS connectors required in 2030 across seven major UK ports are currently in place.[71] However, stakeholders note that reductions in emissions at berth will ultimately form only one part of shipping's decarbonisation journey, and will to an extent be a natural consequence of shipping's holistic regulation towards net zero.

4. **Targeted support for smaller vessels and subsectors**

Recognising that small vessel operators often face disproportionate decarbonisation costs, the strategy commits to proportionate measures to support uptake, critical to preserving competitiveness in subsectors such as coastal freight, ferries, and workboats. Smaller vessels (particularly those below 400 GT) fall outside the immediate scope of core policies such as fuel regulation and emissions pricing, yet they represent a highly diverse and important segment of the fleet. Some vessel types (such as offshore wind service vessels) have clear technological pathways to decarbonisation and others such as fishing vessels will require more time and tailored solutions. However, barriers remain, including fragmented supply chains, unclear regulatory incentives, and skills gaps, particularly where the transition depends on new vessel builds or significant retrofitting, the latter of which is generally not economically feasible for smaller vessels.

Additional challenges include securing finance for upgrades, managing high capital expenditure and ongoing operating costs in the absence of strong regulatory or market incentives, and the limited bargaining power of small vessel operators as price-takers who cannot unilaterally require changes from ports or suppliers. Incentives such as reintroducing the Renewable Fuel Transport Obligation (RFTO) to cover fuels of biological origin such as

[70] Reuters (2024). Britain's creaking power grid leaves green energy revolution adrift.

[71] Transport & Environment and DNV (2025). Lack of government policy means UK ports not investing in onshore power supply.

HVO or FAME for inshore vessels could help level the playing field with other modes of transport, while providing a proportionate decarbonisation pathway for smaller domestic fleets.

5. **Operational energy efficiency**

The strategy aims to expand uptake of energy-saving technologies and digital optimisation across the UK fleet. The UK will support the IMO's suite of short-term energy efficiency measures, including the EEDI, EEXI and CII regulations, which address design improvements, operational performance, and carbon intensity. These measures are expected to be the main driver of emissions reductions in the short term, supported by their relatively low implementation cost. Domestically, the Government is also considering additional actions to incentivise uptake of proven technologies, such as hull optimisation, propeller upgrades, speed and routing adjustments, and digital performance monitoring.

While modelling suggests these efficiency gains will play a major role in short term decarbonisation, there is some uncertainty over their actual uptake, as operators may face barriers including capital constraints or behavioural inertia. In addition, split incentives between vessel owners and charterers, whereby fuel cost savings accrue to a different party than the one making the investment, may limit the adoption of such technologies.

Current challenges

Lack of integrated strategy and coordination

While UK SHORE and Innovate UK offer R&D support, there is limited coordination between industrial strategy, energy planning, and maritime innovation. Other countries, such as China and Norway, align these agendas more effectively to accelerate fleet competitiveness.

A 2023 UK Parliament Transport Select Committee report on net-zero and UK shipping criticises the lack of clear objectives for UK SHORE and highlights delays in refreshing the Clean Maritime Plan. It notes that there is *"no clear strategy"* for scaling fuel manufacturing capacity, shore power deployment, or aligning industry initiatives into coherent clusters.[72] According to industry stakeholders, the current slow pace of UK planning systems, with worsening delays in Marine Management Organisation (MMO) marine licensing, threatens the timely delivery of these projects.

Norway's approach, on the other hand, integrates maritime innovation with industrial and export strategy. Its IMO–UNEP Innovation Forum, hosted in partnership with the Norwegian government, is explicitly designed to bring together global stakeholders, government, ports, industry, and financiers to accelerate adoption of zero-emission maritime technologies. Additionally, through Innovation Norway, the country supports export of green maritime technologies to major markets (e.g., China), promoting global competitiveness of its domestic innovation ecosystem.[73]

[72] House of Commons Environmental Audit Committee (2024). Net zero and UK shipping.

[73] International Maritime Organization (2024). IMO-UNEP-Norway Innovation Forum 2024.

Further coordination with stakeholders will also be required to align investment conditions for port and supply chain infrastructure, including the rollout of alternative fuels and electricity provision to ships calling at major UK ports.

Lack of support to reduce cost as part of green and transition financing

The UK Government has articulated ambitions to become the “world’s first Net Zero-aligned Financial Centre” through the Green Finance Strategy and Treasury-led Green Financing Allocation reports. However, the limitations of this "green" approach for hard-to-abate industries led the UK Government to commission an independent report, the Transition Finance Market Review, on how to grow the transition finance market in the UK. Although there is limited mention of shipping, much of the report recommends the deployment of concessional/blended finance to encourage the sharing of risk between investors and the public sector.[74]Further work is currently being conducted via the Transition Finance Council to build on that report's findings, to enable the UK to establish itself as the global hub for raising and deploying transition finance.[75]

Therefore, targeted financing for maritime decarbonisation remains limited. The shipping sector continues to face financing constraints, particularly for retrofitting existing vessels, developing clean fuel supply chains, and upgrading port infrastructure to accommodate low- or zero-emission vessels. A 2024 briefing by the Environmental Defense Fund identified shipping as a critical gap in green finance flows. European lenders have shown reluctance to invest in vessel retrofits or alternative fuel infrastructure without more robust policy certainty and stronger public-private risk sharing.[76]

Whilst the UK government has a "blended finance unit" within the Department for Energy Security and Net Zero, there have been no announcements for the shipping industry. Industry stakeholders have suggested expanding the use of public-private reward mechanisms such as the “Contracts-for-Difference” (“CfD”) mechanism as a potential derisking measure. Developing bespoke financial instruments, such as green loan guarantees, blended finance vehicles, or dedicated shipping decarbonisation facilities, could also help unlock the UK’s potential as a global centre for maritime green finance, while simultaneously addressing capital bottlenecks in fleet modernisation and offshore vessel competitiveness.

Implications for the UK’s maritime competitiveness

1. **Early regulatory clarity offers a first-mover advantage, but requires careful sequencing**. The phased rollout of domestic fuel regulations, ETS expansion, and berthing requirements provides a predictable trajectory that could unlock investment ahead of other jurisdictions. However, competitiveness gains will depend on the UK’s

[74] Transition Finance Market Review (2024), "Scaling Transition Finance: Findings of the Transition Finance Market Review," UK Treasury and Department for Energy Security and Net Zero.

[75] The Global City (2025). The Transition Finance Council.

[76] Environmental Defense Fund (2024). Green shipping and sustainable finance: Stronger together.

ability to minimise transitional frictions—for example, through well-timed support for fuel suppliers, vessel retrofits, and energy infrastructure, alongside efficient and effective administration to reduce compliance burdens. Furthermore, avoiding unnecessary misalignment with the IMO Net-Zero Framework and the EU ETS will be paramount to prevent additional costs or complexity for UK operators.

2. **Decarbonisation investments could anchor high-value activity in the UK but only if industrial capacity scales in time**. R&D through UK SHORE and the development of green shipping corridors, such as the Green North Sea Shipping Corridor Project between the Port of Tyne and the Port of IJmuiden in Amsterdam, officially launched in December 2024,[77] have the potential to catalyse domestic shipbuilding, marine engineering, and clean energy supply chains. Yet, this opportunity is not automatic: gaps remain in UK manufacturing capability, planning and permitting for port upgrades, and skilled labour availability.

3. **Grid constraints and infrastructure lag are a brake on port competitiveness**. Long electricity connection queues, uncertainty over future port energy demand, and limited regional coordination all pose risks to port attractiveness. Accelerating NESO-led strategic planning and local grid investment will be critical to preserving the UK's status as a preferred docking and bunkering location.

5.3 Decarbonisation measures in other key shipping nations

Achieving a green transition in the timeline set out by international and national commitments remains a huge challenge for the shipping sector. However, many other leading shipping countries have also got ambitious decarbonisation strategies in place, supported by constant technological advancements in green technology. While fuel efficiency requirements and carbon pricing schemes lead to additional costs for shipping companies in the short run (and may, to some extent, draw company funds away from secondary activities such as R&D) they also provide strong pecuniary incentives to increase efficiency as well as to develop and deploy new technologies. Companies and countries that succeed in doing so are likely to gain a long-term competitive advantage.

Singapore

In 2022, Singapore published its Maritime Decarbonisation Blueprint, which outlines seven focus areas: (1) port terminals; (2) domestic harbour craft; (3) future marine fuels, bunkering standards and infrastructure; (4) the Singapore Registry of Ships (SRS); (5) efforts at the IMO and other international platforms; (6) R&D and talent; as well as (7) carbon awareness, carbon accounting, and green financing. The targets set out across these dimensions include reducing port emissions by 60% compared to 2005 levels by 2030, to have all domestic

[77] Port of Tyne (2024). The Green North Sea Shipping Corridor Project: Officially launched.

harbour craft operating on low-carbon energy solutions by 2030, and to have 50% of the SRS fleet operating green ships by 2050.[78]

European Union

As part of the FuelEU Maritime legislation, the EU also mandates that from 2030, TEN-T core/comprehensive ports that average (over three years) >100 container, >40 ro-ro passenger/high-speed passenger craft, or >25 other passenger ship calls (all >5,000 GT) must be able each year to supply OPS for at least 90% of quayside calls in the relevant category.[79]

In addition to the ETS and FuelEU legislation, the EU has created an Innovation Fund dedicated to climate policy. This instrument, with funding sourced from the EU ETS, has financed various shipping-related decarbonisation projects. These projects include SustainSea, which aims to reduce maritime transport CO_2 emissions using wind, FirstBio2Shipping, the first bio-LNG production plant for marine shipping, and SOL, which undertakes research on sugar oils as alternative maritime fuels.[80]

Norway

The Norwegian Shipowners' Association has set its members a target of ordering only zero-emission vessels from 2030 and to become fully climate neutral by 2050. Norway is a global leader in green shipbuilding itself, with a notable share of low and zero-emission vessels built at Norwegian shipyards.[81] For example, between 2011 and 2023, Norway accounted for the most alternative fuel retrofits for both biofuels and LNG globally.[82] The Norwegian government has also mandated that all ferries operating alongside the country's coastline switch to electric propulsion by 2030. Furthermore, from 2026, GHG-emitting vessels will be prohibited from sailing into Norway's World Heritage fjords.[83]

United States

The US has expressed strong resistance toward a mandatory global carbon pricing framework at the IMO,[84] and has scaled up its maritime decarbonisation efforts primarily through

[78] Maritime Port Authority of Singapore (2022). Maritime Singapore Decarbonisation Blueprint: Working Towards 2050.

[79] EU (2023). Regulation (EU) 2023/1804 of the European Parliament and of the Council of 13 September 2023 on the deployment of alternative fuels infrastructure, and repealing Directive 2014/94/EU.

[80] European Commission (2024). Innovation Fund 2024.

[81] Business Norway (2021). Green maritime.

[82] OECD (2025). The Role of Shipbuilding in Maritime Decarbonisation: Impacts of Technology Developments and Policy Measures.

[83] Offshore Energy (2025). Norway scales up maritime climate rules with new zero-emission targets.

[84] U.S. Department of State (2025). Joint Statement on Protecting American Consumers and Shipping Industries by Defeating the International Maritime Organization's "Net-Zero Framework" aka Global Carbon Tax.

domestic legislation and port-led initiatives. The Inflation Reduction Act from 2022, albeit with a now uncertain future due to the new administration, has provided generous tax credits for the production of clean hydrogen and supports port electrification projects through the Environmental Protection Agency's Clean Ports Program.[85] At the state level, California's Air Resources Board mandates shore power use for container, cruise, and reefer vessels at major California ports, with enforcement underway since 2023.[86] The Port of Los Angeles, the US' busiest container port, has committed to fully zero-emission terminal equipment by 2030, backed by federal and state funding.[87] Federally, the Maritime Administration (MARAD) funds alternative fuel and OPS projects through the Port Infrastructure Development Program.[88]

China

China's maritime decarbonisation policy includes mandates under the 14th Five-Year Plan for Water Transport and the Green Shipbuilding Action Plan (2024–2030) to promote LNG, hydrogen, and electric vessels, expand shore power use, and green the shipbuilding supply chain. According to estimates, by 2022 71% of coastal dry bulk carriers were retrofitted for shore power, and shore power coverage at inland ports neared 100%.[89] National rules enforce compliance with IMO's EEXI and CII standards, and ports like Shanghai and Tianjin are piloting smart energy systems powered by wind and solar. A pilot to integrate shipping into China's carbon trading system is also underway in Shanghai.

United Arab Emirates

The UAE's decarbonisation roadmap is guided by the National Net Zero by 2050 Strategy, the first such document by a Middle Eastern country, and includes sector-specific maritime targets. According to the strategy, domestic shipping will increasingly resort to ammonia and methanol, with an estimated 75% of the fuel mix to come from ammonia by 2050. Coastal ships are expected to be fully electrified by 2050—though this is subject to 'global achievement of international shipping emissions reduction targets'. The UAE aims to become an international hydrogen hub, producing the alternative fuel that the shipping transition requires. The country is also part of international green shipping corridor pilots linking the Gulf to Europe and Asia.[90]

[85] Environmental Protection Agency (2025). Clean Ports Program Awards.

[86] California Air Resources Board (2023). Ocean-Going Vessels At Berth Regulation.

[87] Los Angeles Times (2024). Port of Los Angeles receives unprecedented $400-million grant to electrify operations.

[88] MARAD (2025). Bipartisan Infrastructure Law: Maritime Administration.

[89] Hu, M., & Dong, Y. (2024). China's shipping emissions governance: status and prospects under the dual carbon goal. Frontiers in Marine Science, 11, 1405312.

[90] UAE Ministry of Climate Change & Environment. The United Arab Emirates' First Long-Term Strategy (LTS).

6 Labour market

A well-functioning labour market is central to the long-term competitiveness of national shipping sectors. While maritime labour is globally mobile, nations with effective training ecosystems, immigration frameworks, and alignment between skills supply and industrial policy are better positioned to capture high-value shipping and maritime services. A sufficient supply of active, qualified seafarers is central to long-term shipping competitiveness, not only for crewing ships but also for providing a flow of experienced personnel into shore-based roles, strengthening the wider maritime cluster. This section examines two core elements, seafarer training regimes and immigration policy, and assesses how these contribute to or constrain UK competitiveness.

6.1 Domestic maritime training regimes

Seafarer training models vary significantly across countries and are shaped by differing funding structures, strategic objectives, and regulatory environments. These models can broadly be categorised into three types:

- **State-payer model**: The state funds most or all shoreside training costs (e.g. France, China, Greece, Russia);
- **Sponsor-payer model**: Shipping companies or manning agencies pay training costs, often with state co-funding (e.g., the UK, Philippines, Singapore); and
- **Student-payer model**: The student bears most of the cost, albeit with subsidies or state-controlled fees (e.g., the United States, India).

National models and funding mechanisms

- In the **UK**, cadet training is sponsored by employers, who receive partial reimbursement through the Support for Maritime Training (SMarT)[91] scheme. Cadets incur no tuition costs and receive a training allowance from their sponsoring companies. Separate funding from the Department for Education (DfE) is also available for apprenticeships; for example, a recently launched "Zero to Hero" Ship's Master apprenticeship was made eligible for the maximum permissible funding of £27,000 following endorsement from the Institute for Apprenticeships and Technical Education (IfATE).[92]
- **France** offers a fully state-subsidised training system through its national academy (ENSM), with students paying only nominal annual registration fees.[93]

[91] Maritime and Coastguard Agency (2025). Seafarer cadets funding secured for extra 12 months by Maritime and Coastguard Agency.

[92] UK Chamber of Shipping (2025). New "Zero To Hero" Apprenticeship launched to provide new opportunities for a career at sea.

[93] ENSM (2025). Initial Education Courses.

- **The Netherlands** combines state-subsidised tuition with company sponsorships covering both tuition and living allowances.[94]
- **Greece** also provides free maritime education to national cadets.[95] In all three countries above, EU state aid rules allow governments to fund up to 100% of maritime training costs and provide labour cost reductions, enabling these models.
- In the **United States**, state maritime academies (SMAs) charge tuition of approximately $12,000–$30,000 per year, but students are eligible for up to $64,000 in financial support over a four-year period.[96] At the federal U.S. Merchant Marine Academy (USMMA), tuition is fully state-funded.[97]
- The **Philippines** operates a dual system: the state-funded Philippine Merchant Marine Academy (PMMA) provides fully subsidised training, while the private college sector is largely financed by sponsoring agencies or international shipping lines.[98]
- In **India**, students pay subsidised tuition at public institutions, with private alternatives charging higher rates.
- **Singapore** employs a structured sponsor-payer model, with significant cost recovery provided to employers via the Maritime and Port Authority's Maritime Cluster Fund (MCF), covering up to 70% of course fees and S$2200 of monthly cadet allowances during onboard training.[99]

Seafarer training funding models influence both national supply capacity and the quality and strategic positioning of maritime labour. The **Philippine** model has been the most successful globally for mass supply, consistently maintaining its position as the top source of seafarers for the international fleet. However, the model has also faced challenges. The majority of Filipino seafarers are ratings rather than officers, and aspects of officer training standards have come under international scrutiny, most notably in recent years when the European Commission reviewed the recognition of Philippine certificates of competency, prompting commitments to reform. **China** (4th among the sample countries) has managed to rapidly scale its output, benefiting from centralised investment and integration with its broader maritime industrial policy.

On the other hand, countries like **Greece** and **Singapore** have structured, well-coordinated maritime training regimes that align with national industrial objectives. The **UK's** sponsor-

[94] Maritime Institute Willem Barentsz (2025). About Maritime Institute Willem Barentsz.

[95] Ministry of Maritime and Island Policy. (2025). Admission notice for the Merchant Marine Academies (AEN), academic year 2025–2026. Hellenic Coast Guard.

[96] MARAD (2025). The Student Incentive Payment (SIP) Program.

[97] USMMA (2025). Fees and Expenses.

[98] Philippine Merchant Marine Academy (2025). Admission Process.

[99] Maritime & Port Authority of Singapore (2025). Developing Manpower.

payer model, with its reliance on the SMarT scheme, has been successful in significantly raising the output of UK-trained seafarers. However, some residual physical constraints to further scale up numbers remain, such as there being limits to training berths and ability to provide sea time beyond what has been committed to by current training providers and shipping companies. These physical constraints should be looked at, if UK cadet/seafarer trainee numbers are to scale to match fleet or green-transition ambitions.[100]

Maintaining SMarT funding is considered a critical factor to preserving training numbers, ensuring employment opportunities for UK seafarers and supporting inward investment. Alongside this, further strengthening the design and uptake of maritime apprenticeships could widen entry pathways into the sector and complement cadet training with more flexible, work-based skills provision. In both cases, government financial support can play an important role in supporting industry efforts to promote new entrants to the shipping industry and facilitate skills development for both the new and existing workforce to ensure that the UK is to benefit from the opportunities that greater digitalisation and the net zero transition provide.

International decarbonisation mandates are increasing demand for personnel trained in new technical domains. While there is broad recognition that UK maritime training must continue to modernise, particularly through upskilling and reskilling in areas such as alternative fuels, digitalisation, systems resilience, and green technologies, steps are being taken to address these needs. The Cadet Training and Modernisation (CT&M) programme, led by the Maritime and Coastguard Agency (MCA), is advancing reforms including the introduction of electronic Training Record Books (eTRBs) to ensure cadet training remains fit for future requirements.[101] In parallel, new specialist provision is emerging, such as the MCA-approved course on electric propulsion (AEPC1) launched in 2024.[102] Continued resourcing and strategic updating of domestic training will be essential to ensure the UK has sufficient capacity to meet decarbonisation demands, rather than relying on recruitment from abroad.

Nevertheless, the UK is currently playing a regulatory leadership role in initiating a comprehensive review of the Standards of Training, Certification and Watchkeeping for Seafarers (STCW) Convention through the IMO. The Maritime and Coastguard Agency's Cadet Training and Modernisation Programme has been accepted by the IMO's Human Element, Training and Watchkeeping (HTW) sub-committee and is now being advanced within the working group for inclusion in the amended STCW Convention and Code.[103] This further reinforces the UK's influence in shaping international shipping standards.

[100] Department for Transport (2017). Support for Maritime Training (SMarT) Scheme.

[101] Maritime and Coastguard Agency (2024). Maritime skills boost as MCA-led UK cadet training overhaul completes next step.

[102] Maritime and Coastguard Agency (2024). MCA Approved Electric Propulsion Course 1 (AEPC1) – Guidelines.

[103] Maritime and Coastguard Agency (2025). UK global leadership in maritime training to support safer, cleaner seas.

6.2 Seafarer immigration policy

As domestic supply of seafarers seldom suffices for most countries' shipping companies to adequately crew their vessels operating in their waters, an important aspect of competitiveness remains the availability of skilled foreign labour. In the UK as elsewhere, seafarers are usually employed on a contractual, rotational basis (e.g., from 2 weeks on 2 weeks off to 3–6 months on board, followed by equivalent time off), a model designed to maintain operational flexibility and ensure that labour costs are manageable.

Current UK framework and limitations

In most countries, foreign seafarers may enter under a seafarer transit visa or exemption, provided they are joining or leaving a vessel. In the UK, this is governed either by a "joining ship" visa or by exemptions under the Immigration Act 1971, which apply when the individual remains on board or departs the UK within a short time frame. Seafarers joining vessels in UK ports do not need a Skilled Worker visa, unless they are employed onshore or aboard UK-flagged vessels operating wholly in UK waters.[104] Internationally, similar arrangements apply. For example, the United States requires a C-1/D crew visa, which allows entry to join a vessel, but imposes controls on disembarkation and time ashore.[105]

However, UK immigration rules fall short in accommodating sectors where crew operate **entirely within UK territorial waters** (i.e. within 12 nautical miles) and service operating exclusively between UK ports. Two key cases stand out:

- **Offshore energy** operations (e.g. offshore vessels involved in wind farm construction and maintenance, or in oil and gas platform decommissioning —see Section 6 for a discussion on offshore energy);
- **Ferry and RoRo services between Great Britain and Northern Ireland**, which operate wholly within the UK's immigration jurisdiction.

This presents a challenge for employers, as their ability to recruit and retain a UK-resident workforce is undermined by the non-applicability of the Seafarers' Earnings Deduction to work in these cases. Hence, they are reliant on non-UK nationals. The current UK immigration framework fails to provide suitable or streamlined visa routes for the kinds of short-duration but repeated assignments typical in these sectors. For example, offshore vessels operating in UK waters must often rotate specialised international crew members at regular intervals. Under existing immigration rules, such crew require Skilled Worker visas, which entail sponsorship obligations, minimum salary thresholds, and long processing times.

This is misaligned with the operational realities of the sector, where assignments are typically shorter and project-based. The same issue arises in the context of UK–Northern Ireland ferry

[104] UK Visas and Immigration (2024). Seafarers.

[105] US Department of State (2025). Crewmember Visa.

and freight services, where crew do not technically leave the UK's immigration jurisdiction but may be based overseas and rotate in and out frequently.

Stakeholders have called for arrangements under which operators in the aforementioned trades could obtain the crew members they require from overseas without impractical restrictions. Such measures would allow companies to maintain essential supply chain routes while continuing to train and recruit UK seafarers, and would also enable the mobilisation of specialised international crews needed for offshore wind construction. In practice, this could improve the UK's attractiveness to operators, help contain project costs, and support wider energy transition objectives.

6.3 Implications for competitiveness

The **absence of a dedicated short-term maritime visa route**, in particular, undermines project cost-efficiency and erodes the UK's competitiveness in offshore energy logistics. Industry stakeholders argue that this imposes disproportionate administrative and cost burdens on developments in UK territorial waters, deterring operators from accessing needed skills and undermining the UK's position as a flexible maritime base. Norway, while lacking a formal short-term work permit route, provides technical exemptions under its Aliens Act that enable the short-term mobilisation of foreign maritime professionals, such as for inspection or maintenance work of up to 90 days, without requiring a full work or residence permit. While more flexible than the UK's current arrangements, the scheme is viewed as administratively cumbersome, as it depends on prior notification to and approval from the relevant police district.[106]

Beyond offshore operations, some leading maritime nations have adopted frameworks that facilitate rapid crew mobilisation and minimise nationality-based restrictions. For instance, Singapore imposes no nationality requirements for crewing Singapore-flagged vessels and supports efficient crew change processes through its Maritime and Port Authority. These policies contribute to its operational agility and reinforce its status as a global maritime hub.[107]

A further aspect of the UK immigration regime that could affect competitiveness concerns the need for improved UK Border Force-Home Office coordination at all UK airports and seaports. Over the years, some shipping company stakeholders have reported various inconsistencies with the Border Force application of Home Office policies regarding international seafarers, especially at airports and some seaports where those Border Force officials may have less experience of applying seafarer immigration rules.

[106] Fragomen (2025). Navigating Immigration Requirements for Third-Country Nationals in Norway's Energy Sector.

[107] Maritime and Port Authority of Singapore (2025). Overview of Crewing a Singapore Ship.

7 Offshore energy

7.1 Offshore energy in the UK

To support the ongoing energy transition and the UK Government's goal of net zero emissions by 2050, many of the UK's oil and gas production facilities in the North Sea will be entering their decommissioning phase in the coming years. Production of crude oil is projected to decrease from a current level of 26.3 million tonnes per year to 4.3 million tonnes in 2050 and virtually all oil and gas production between now and then is expected to come from existing developments due to the UK Government's policy of no new drilling licences.[108] In contrast, Norway continues to pursue new offshore exploration alongside its decarbonisation objectives, seeking to extend the life of its oil and gas sector while investing in low-carbon technologies and electrification of platforms. This approach sustains a higher level of offshore activity, supporting both domestic vessel demand and retention of specialist skills.[109] In both cases, to support the rigs still in operation and to carry out a safe decommissioning or repurposing process of rigs at the end of their lifecycle, a fleet of specialised vessels and units is required.

On the other hand, in terms of renewables, the UK has become one of the global leaders in offshore wind development and buildout thanks to its ongoing decarbonisation push and favourable wind conditions. It currently ranks second globally after China in terms of offshore wind capacity in operation with 15.6GW.[110] The UK also boasts some of the largest offshore wind farms in the world, such as Hornsea 1 and 2, Seagreen, as well as Dogger Bank, currently under construction, and has the world's second-largest offshore wind pipeline at 96GW of capacity across 123 projects at all stages of development.[111] As with oil and gas, to enable the surveying, construction, maintenance, and eventual decommissioning of the offshore wind turbines, a supply of specialised ships is essential. These vessels include up to 14 different ship types, e.g., Hydrographic Survey Vessels, Heavy Lift Vessels, Wind Turbine Installation Vessels (WTIVs), Commissioning Service Operation Vessels (CSOVs), and Crew Transfer Vessels (CTVs).

7.2 Offshore vessels and global fleet

The offshore energy sector requires many types of highly sophisticated vessels. These ships are called Offshore Support Vessels (OSVs) and include, e.g., Seismic Survey Ships, Platform Supply Vessels (PSVs), Anchor Handling Tug Supply Vessels (AHTs), Construction Support Vessels (CSV), Diving Support Vessels, Inspection, Maintenance, and Repair Vessels (IMRs), and ROV Support Vessels. These ships are used, inter alia, to transport supplies, materials,

[108] The North Sea Transition Authority (2025). Production and expenditure projections.

[109] Equinor (2025). Exploration for oil and gas.

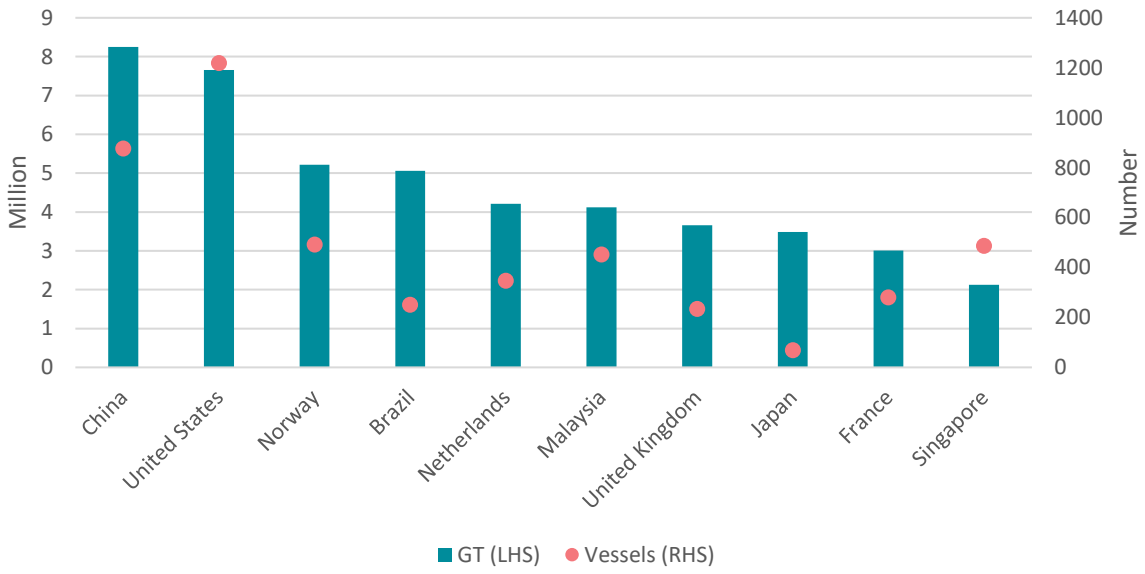
[110] World Forum Offshore Wind (2025). Global Offshore Wind Report 2024.

[111] RenewableUK (2025). Global offshore wind pipeline February 2025.

and people from land to offshore rigs and ships, assist drilling rigs with the handling of mooring chains and anchors and towing rigs, as well as support surface and subsea installations.

Due to its prowess in offshore energy, the UK's owned offshore supply fleet is significant and stands at 235 vessels (11th in the world), with a total capacity of 3.66 million GT (7th). However, other countries also field large and technically advanced offshore vessel fleets. The largest fleets by GT are possessed by China (8.25 million), the US (7.66 million), Norway (5.22 million), Brazil (5.06 million), the Netherlands (4.21 million), and Malaysia (4.12 million). In terms of the number of vessels, the US (1,219 vessels) overtakes China (877), followed by Norway (492), Singapore (487), and Malaysia (453).[112] Figure 13 provides an overview of the ten largest offshore fleets by gross tonnage.

Figure 13: Offshore fleet; gross tonnage and number of vessels by country



Source: Clarksons World Fleet Register, Cebr analysis

In the United States, the large number of offshore vessels reflects the scale of offshore oil and gas activity in the Gulf of Mexico. The US fleet is predominantly composed of PSVs and AHTS vessels, many operating under the Jones Act, which restricts domestic maritime transport to US-built, -owned, and -crewed vessels. Whilst this legislation has contributed to the retention of a domestic offshore fleet,[113] the constraints and costs of the Jones Act have led to a long-standing and divisive debate about its impact on US shipping.[114] Furthermore, the US

[112] Clarksons (2025). World Fleet Register.

[113] Offshore Marine Service Association (2025). Jones Act.

[114] Pacific Legal Foundation (2025). The Jones Act: A disastrous legacy for the U.S. economy and security.

Congress has enacted exemptions and waivers to the Jones Act to further US strategic interests, such as enabling the full exploitation of offshore energy within US waters.[115]

China's offshore fleet has grown rapidly, driven by state-directed offshore oil and gas expansion and substantial investment in offshore wind. Chinese operators benefit from vertically integrated shipbuilding capacity and government support schemes, allowing for rapid fleet renewal and expansion in both fossil and renewable energy segments.[116]

Interconnectedness of offshore wind and oil & gas

The offshore wind industry shares numerous characteristics with offshore oil and gas production, particularly in the structure of supply chains, the engineering and operational skill sets required, and the industrial infrastructure on which both rely. Surveys indicate that around 60% of UK oil and gas supply chain companies are already diversifying into offshore wind, hydrogen, and carbon capture and storage (CCS), although revenues from these low-carbon activities still account for only between zero and one-fifth of turnover.[117] However, uncertainty over the future of oil and gas investment in the North Sea is prompting as many as 90% of these companies to look overseas for growth opportunities.[118] This policy environment, combined with the UK Government's position of virtually no new oil and gas licensing, risks accelerating human capital flight from the domestic offshore sector, as skilled personnel seek more secure opportunities in other industries or abroad.

Retaining this expertise and industrial capacity is critical, as the strong degree of overlap in capabilities between offshore renewables and fossil fuels, ranging from structural engineering and subsea infrastructure to specialist vessel operations, means that the UK's existing offshore energy supply chain is already well positioned to participate in the energy transition. Parliamentary evidence suggests that between 60% and 80% of the capabilities needed for the low-carbon transition already exist within the current supply chain, underscoring its potential to scale into renewables if the investment environment is supportive.[119]

International examples illustrate other facets this interconnectedness. In Norway, Equinor's Hywind Tampen floating wind farm now supplies around 35% of the electricity demand of nearby offshore oil platforms, demonstrating how offshore wind can also directly complement and decarbonise hydrocarbon operations.[120]

[115] U.S. Congress (2019). Shipping Under the Jones Act: Legislative and Regulatory Background.

[116] OECD (2021). Report on China's shipbuilding industry and policies affecting it.

[117] Offshore Energies UK (2025). Supply Chain Report 2025.

[118] Offshore Energies UK (2025). Impact of UKCS Fiscal Policy on UK Economic Growth – Autumn 2024 Analysis.

[119] Offshore Energies UK (2025). Building the North Sea's Energy Future.

[120] Equinor (2025). Hywind Tampen.

7.3 Taxation of offshore energy

The competitiveness of a country's offshore oil and gas sector and, by extension, the demand for the services of an offshore fleet, can be sensitive to the prevailing fiscal regime. Governments employ a variety of instruments, including royalties, corporate income taxes (CIT), special petroleum taxes, and production sharing mechanisms to capture a share of the economic rent from hydrocarbon production. These fiscal regimes have a direct effect on project economics, influencing final investment decisions and thus the scale and nature of OSV demand. They also vary in stability, transparency, and government take.

In the North Sea, fiscal regimes are among the most developed and have high effective tax rates. The **UK** currently applies a ring-fenced CIT of 30%, an Energy Profits Levy (EPL) of 38%, and a supplementary charge (SC) of 10%, bringing the combined marginal tax rate on oil and gas extraction to 78%, though decarbonisation allowances of 66% are available on the EPL.[121] **Norway** imposes a combined effective rate of 78%, with a 22% CIT and a 56% special petroleum tax, funding its sovereign wealth fund.[122] **Denmark** applies a 25% CIT and a 52% Hydrocarbon Tax under a ring-fenced regime, with the 25% tax deductible in computing hydrocarbon tax, resulting in an effective tax rate of 64%.[123]

In the **US** Gulf of Mexico, the federal concessionary regime currently imposes royalty rates of 12.5% to 18.75%, depending on lease terms and water depth, though a uniform rate of 16.67% has been proposed for future shallow and deepwater lease sales.[124] **Brazil** applies a 15% royalty and a 34% CIT, alongside a Special Participation tax that escalates with time, production and price levels.[125]

In the Asia-Pacific region, Malaysia and Indonesia both operate under production sharing contract (PSC) frameworks. **Malaysia** applies a 10% royalty and 38% CIT, with terms negotiated by Petronas, the national oil company.[126] **Indonesia**, under its Gross Split PSC regime, imposes a variable profit split and 22% CIT, with production split before cost recovery.[127]

Table 10 highlights the variety of these arrangements. It should be noted that each of these systems is tailored to the specific characteristics of the respective country's legislative and institutional context as well as the locations, sizes, and types of the respective oil and gas

[121] North Sea Transition Authority (2025). Taxation.

[122] PwC (2025). Norway: Corporate – Taxes on Corporate Income.

[123] PwC (2025). Denmark: Corporate – Taxes on Corporate Income.

[124] Bureau of Ocean Energy Management (2025). Oil and gas.

[125] Wood Mackenzie (2025). Brazil upstream fiscal summary.

[126] Fulcrum (2024). Tug of Wealth: Malaysian States Seek a Fairer Deal in Oil and Gas.

[127] PwC (2025). Indonesia: Taxes on corporate income.

fields. This variance precludes any direct comparisons of relative competitiveness, though available evidence suggests that the UK fiscal regime for offshore oil and gas production is among the more highly taxed globally.

Table 10: Offshore energy tax regimes of select countries

Country	Regime Type	Main Taxes/Levies	Effective Tax Rate	Notes
United Kingdom	Ring-fenced corporate tax	30% Corporate Income Tax (CIT); 10% Supplementary Charge (SC); 38% Energy Profits Levy (EPL)	Up to 78%	SC can be reduced to zero via decarbonisation allowances. Applies to UK Continental Shelf.
Norway	Ring-fenced with sovereign fund	22% CIT; 56% Special Petroleum Tax	78%	Revenue contributes to the Government Pension Fund Global.
Denmark	Ring-fenced corporate tax	25% CIT; 52% Hydrocarbon Tax (HT)	64%	CIT is deductible in calculating HT.
United States	Federal concessionary regime	12.5% to 18.75% royalty (depending on lease); Proposed: 16.67% royalty for all offshore leases	N/A (royalty-based)	Applied in the Gulf of Mexico. No federal CIT ring-fencing for offshore.
Brazil	Royalty + profit-based regime	15% royalty; 34% CIT-Special Participation Tax (variable)	Variable	Special Participation tax increases with production, price, and time.
Malaysia	Production Sharing Contract (PSC)	10% royalty; 38% CIT	Negotiated	Terms negotiated by Petronas; fiscal terms vary by contract.
Indonesia	Gross Split PSC	Production share (gross split); 22% CIT	Variable	No cost recovery; production is split before tax. Terms set under Gross Split PSC.

Source: See page above

7.4 The UK's strategic positioning to maintain competitiveness

The UK's position in offshore energy presents a mix of strengths and vulnerabilities from a shipping competitiveness perspective. Early leadership in offshore wind and proximity to key North Sea markets offer advantages, yet these remain under-leveraged due to industrial capacity constraints, fragmented coordination, and limited green finance penetration.

Industrial scaling gap

There currently exists a mismatch between offshore wind growth targets and UK-owned capacity to supply and maintain the necessary support vessels. If left unaddressed, this will increase dependence on foreign fleets, potentially drive up project delivery costs, and reduce the overall economic benefits accruing to the UK. The Financial Times reports that a global

shortage of specialised vessels like the *Wind Orca* is jeopardising the UK's ambition of 50GW in offshore wind capacity by 2030. Developers are being outbid by companies from the US and Asia for critical vessel slots.[128] An independent UK Offshore Wind Champion report states that domestic port facilities, heavy-lift vessels, and electrical equipment capacity are materially constrained, threatening timely, cost-effective deployment.[129] A further factor is the fragmented approach between industrial strategy, energy planning, and maritime innovation, highlighted in the context of decarbonisation strategy in Section 5.2, which can hinder coordinated investment and delay scaling of capacity.

These constraints highlight that bottlenecks in offshore wind delivery are not solely vessel-related, with infrastructure, supply chain capacity, and the broader policy environment often proving equally or more limiting.

First-mover status in offshore wind

The UK's early and sustained investment in offshore wind places it among the global leaders in installed capacity and regulatory experience. This first-mover status positions the UK to export regulatory expertise, project management capabilities, and vessel design knowledge to emerging offshore wind markets. In particular, the UK is well placed to play a leading role in the development of international green shipping corridors, i.e., routes where emissions from vessels are minimised through zero-carbon fuels and coordinated infrastructure deployment, especially between Northern Europe and the North Sea basin.

Strategic maritime geography

The UK's proximity to key Northern European offshore markets, such as Germany, Denmark, the Netherlands, and the UK itself, offers a potential comparative advantage as a servicing and logistics hub for offshore vessels. However, this geographic potential remains underutilised in the absence of coordinated infrastructure investment. Port upgrades, including heavy-lift capacity, quay space, and bunkering for low-emission fuels, are necessary to enable this positioning. A strategic approach to offshore vessel-related port infrastructure could enhance the UK's role as a regional base for offshore energy servicing. Recent examples of infrastructure upgrades include the Ardersier Energy Transition Facility, set to serve as an assembly, delivery, and operations centre for the 1GW Aspen project in the North Sea,[130] as well as the world's first green hydrogen shore power demonstrator at the Port of Leith.[131]

[128] Financial Times (2024). Supply chain squeeze threatens to blow UK wind power plan off course.

[129] Department for Energy Security and Net Zero (2023). Accelerating deployment of offshore wind farms: UK Offshore Wind Champion recommendations.

[130] BBC (2025). Highland port secures work on North Sea wind farm.

[131] Forth Ports (2025). World's First Green Hydrogen Shore Power Demonstrator showcased at the Port of Leith.

8 Conclusion

While the UK maintains a strong position in the global maritime landscape, sustaining and enhancing its competitiveness will require a forward-looking and coordinated policy response. This report has identified a series of structural challenges, from institutional fragmentation and infrastructure bottlenecks to workforce constraints and underdeveloped access to green and transition finance. Crucially, not all gaps are feasible, or necessary, to close. The UK's status as a service-oriented, innovation-led maritime economy means it need not replicate the scale-driven strategies of China or Greece. Instead, it should consolidate its leadership in areas of comparative advantage: regulatory governance, high-value maritime services, legal and insurance expertise, and decarbonisation. Nevertheless, targeted progress on attracting inward maritime investment through continued fiscal and training offerings, addressing logistics efficiency, and institutional responsiveness will be vital to reinforce its standing in an increasingly competitive international environment.

Trade and connectivity

The UK underperforms on several trade-related indicators, owing in part to the competitiveness of international shipping emanating from other countries and persistent logistical constraints. Improving the recorded value of sea transport services exports will require the use of policy levers such as encouraging greater ship ownership in the UK, expanding UK Export Finance tools, and supporting niche segments like offshore energy logistics, which could help capture more activity onshore. Declining scores in the Logistics Performance Index signal a broader need to modernise port infrastructure, improve customs efficiency, and strengthen hinterland connectivity. More effective integration of ports with rail and inland distribution networks and reducing reliance on road transport would help ease congestion, lower costs, and better link UK ports into global supply chains.

Reducing friction at the UK-EU border remains critical to maintaining the country's role as a competitive gateway. Proposals such as a Common Security Area to minimise duplicative declarations, full implementation of the Single Trade Window, and improved SPS arrangements would help address post-Brexit barriers. Beyond policy design, practical measures such as increased capacity and consistency of approach at border points and incorporating user experience into future revisions of the UK–EU Trade and Cooperation Agreement are essential to rebuilding predictability and cost-efficiency in cross-border supply chains.

Cruise and tourism

Secondly, the UK's position as a leading cruise hub could be further embedded into wider tourism and maritime growth strategies. That includes not only infrastructure and facilitation measures, but also ensuring cruise is recognised within national tourism plans and maritime decarbonisation strategies, so that it remains aligned with the UK's broader ambitions for green growth and international connectivity. However, it is important to note that the cruise industry's competitiveness is intertwined with the wider shipping industry's competitiveness in many areas, such as decarbonisation, borders, and workforce skills and training.

Infrastructure and institutional alignment

Ports sit at the centre of the UK's maritime decarbonisation agenda, but grid constraints, delayed approvals, and planning complexity continue to hinder progress. Clearer strategic direction from government, including NESO-led spatial planning and upgrades to electricity infrastructure, will be crucial. More broadly, institutional fragmentation has slowed the alignment of maritime needs such as electrification, logistics capacity, and supply chain resilience with industrial strategy and national infrastructure planning. An integrated, cross-departmental approach to maritime policy is essential, including a reform of marine planning and consenting regimes, as well as improved coordination across energy, trade, and transport portfolios.

Decarbonisation and access to green and transition finance

The UK's ambition to establish itself as the global hub for raising and deploying transition finance, as part of it becoming the world's first Net Zero-aligned Financial Centre, is a welcome development, but maritime remains underrepresented in current green and transition finance initiatives. Stakeholders have pointed to a lack of policy certainty and public-private risk-sharing mechanisms as key barriers to unlocking investment in vessel retrofits, fuel infrastructure, and zero-emission port capacity. To address this, the UK should explore the development of bespoke financial instruments such as green loan guarantees, blended finance vehicles, and Contracts-for-Difference tailored to maritime decarbonisation. These could help unlock investment not only in retrofitting and fuel infrastructure but also in offshore service vessel innovation, where UK firms face international competition. Equally important is the development of scalable port infrastructure for onshore power supply, alternative bunkering infrastructure, and emissions control, ideally aligned with global frameworks such as the IMO's Net Zero Strategy. Without greater policy coherence, especially around the UK ETS and its interface with EU schemes, private investment is likely to remain constrained.

Workforce, skills and immigration policy

Strengthening the UK's maritime competitiveness requires renewed focus on workforce development and more responsive immigration policy. Schemes like SMarT, apprenticeships, and Careers at Sea are positive alongside the MCA's Cadet Training & Modernisation package. However, with a rapidly changing maritime sector the UK still has much to do to increase vocational readiness and cadet throughput. Adapting the tonnage tax training obligation, currently constrained by sea-time availability and rigid ratios, could help widen industry participation and increase trainee numbers. Maintaining consistent SMarT funding and expanding awareness of maritime careers will also be essential to build a robust domestic talent pipeline capable of supporting the sector's long-term transformation.

At the same time, the UK must address immediate workforce gaps, particularly in specialised offshore roles, through targeted immigration measures. Easing visa restrictions for short-term, high-skilled positions would enable UK operators to deliver vital services, such as offshore wind construction and the Great Britain to Northern Ireland ferry routes, while domestic training capacity scales up. Improved UK Border Force coordination at all UK ports when implementing Home Office policies for international seafarers could enhance the appeal of UK ports and improve operational efficiency.

Annex A: Data and statistical treatment of index components

This section provides further methodological detail on the data and statistical treatment of the individual index components.

Fleet value by country of beneficial ownership – Sourced from Clarksons, accessed through UNCTADstat and the World Fleet Register. Log-transformed prior to min-max normalisation. *https://unctadstat.unctad.org/datacentre/dataviewer/US.VesselValueByOwnership*

Deadweight tonnage (DWT) by country of beneficial ownership – Sourced from Clarksons, accessed through UNCTADstat. Log-transformed prior to min-max normalisation. *https://unctadstat.unctad.org/datacentre/dataviewer/US.FleetBeneficialOwners*

Fleet age by flag state – Average vessel age. Sourced from Clarksons, accessed through UNCTADstat. Inverted min-max normalisation applied. *https://unctadstat.unctad.org/datacentre/dataviewer/US.MerchantFleet*

Number of ship management companies – Earliest available data from 2016 used as a proxy for situation in 2014. Sourced from Lloyd's List. *https://directories.lloydslist.com/services-browse/ss/3123/country/*

Seafarer supply – Number of seafarers from a given country operating the world merchant fleet. Sourced from BIMCO, accessed through UNCTADstat. Log-transformed prior to min-max normalisation. Most recent data from 2021 used for 2023, applying last observation carried forward (LOCF) extrapolation. *https://unctadstat.unctad.org/datacentre/dataviewer/US.Seafarers*

Productive Capacities Index (PCI) – Human Capital – Captures the education, skills and health conditions possessed by population, and the overall research and development integration in the texture of society through the number of researchers and expenditure on research activities. Proxy for the quality of the available workforce. Sourced from *UNCTADstat. https://unctadstat.unctad.org/datacentre/dataviewer/US.PCI*

Sea Transport Services Exports – Share of global exports. Covers all international freight and passenger transport services undertaken by seagoing vessels but does not include transport by underwater pipelines (included in pipeline transport) and cruise fares (included in travel). Sourced from OECD. Log-transformed prior to normalisation. *https://www.oecd.org/en/data/datasets/oecd-balanced-trade-statistics.html*

Liner Shipping Connectivity Index (LSCI) – The LSCI is generated from the following six components: (1) The number of scheduled ship calls per week (i.e., weekly average of annual schedule) in the country; (2) Total scheduled annual deployed capacity, in Twenty-foot-Equivalent Units (TEU), offered in the country; (3) The number or regular liner shipping services from and to the country; (4) The number of liner shipping companies that provide services from and to the country; (5) The size, in TEU, of the largest ship deployed on services from and to the country; and (6) The number of other countries that are connected to the country through direct liner shipping services (where a direct service is defined as a

regular service between two countries – it may include other stops in between, but usually no transshipment, as this is not required in the transport of a container). Log-transformed before min-max normalising. Sourced from UNCTADstat. *https://unctadstat.unctad.org/datacentre/dataviewer/US.LSCI*

International Transport and Insurance Costs of merchandise trade (ITIC) – Costs associated with transporting and insuring goods across borders. These costs are expressed as CIF/FOB margins, interpreted as the difference between the Cost, Insurance, and Freight (CIF) and the Free-On-Board (FOB) valuations for the same import flow. Calculated from the average of the top ten trading partners by imports for each country. Sourced from OECD. Inverted min-max normalisation applied. *https://www.oecd.org/en/data/datasets/international-transport-and-insurance-costs-of-merchandise-trade-itic.html*

Logistics Performance Index (LPI) – The LPI is generated from the following six components: (1) Customs Score; (2) Infrastructure Score; (3) International Shipments Score; (4) Logistics Competence Score; (5) Tracking and Tracing Score; and (6) Timeliness Score. Sourced from the World Bank. *https://lpi.worldbank.org/international/global*

Flag State Performance (FSP) – Weighted average of the following components: (1) Ratification of maritime conventions (0.5); (2) Presence on either the Paris or Tokyo MoU White List (0.3); and (3) Attendance of key IMO meetings (0.2). Measure of flag quality. Sourced from the Flag State Performance Table by the International Chamber of Shipping. *https://www.ics-shipping.org/resource/shipping-industry-flag-state-performance-table-archives/*

Services Trade Restrictiveness Index (STRI) for Water Transport – The STRI is generated from the following five components: (1) Restrictions on foreign entry; (2) Restrictions to movement of people; (3) Other discriminatory measures; (4) Barriers to competition; and (5) Regulatory transparency. Sourced from OECD. Inverted min-max normalisation applied. *https://www.oecd.org/en/topics/services-trade-restrictiveness-index.html*

Worldwide Governance Indicators (WGI) – Captures six dimensions of governance, the first five of which were included for this indicator: (1) Political Stability and Absence of Violence/Terrorism; (2) Government Effectiveness; (3) Regulatory Quality; (4) Rule of Law; (5) Control of Corruption; (6) Voice and Accountability (excluded due to non-relevance). Sourced from the World Bank. *https://www.worldbank.org/en/publication/worldwide-governance-indicators*

Index of Economic Freedom – Business Freedom – Four sub-factors that affect the ease of starting, operating, and closing a business: (1) Access to electricity: (2) Business environment risk: (3) Regulatory quality: and (4) Women's economic inclusion. Sourced from the Heritage Foundation. *https://www.heritage.org/index/*

Financial Development Index – Financial Markets Depth – Considers variables such as stock market capitalisation to GDP, stocks traded to GDP, International debt securities of government to GDP, total debt securities of financial corporations to GDP, total debt securities of nonfinancial corporations to GDP. Proxy for ship finance availability. Sourced from the IMF. *https://legacydata.imf.org/?sk=f8032e80-b36c-43b1-ac26-493c5b1cd33b*

Annex B: Sensitivity testing results

To assess the robustness of the index to alternative weighting schemes, a sensitivity analysis was conducted by reweighting all indicators equally. Under the main specification, indicators are assigned tiered weights: Tier 1 indicators receive a weight of 3/30 (10%), Tier 2 receive 2/30 (6.67%), and Tier 3 receive 1/30 (3.33%). This method aims to capture their relative importance to shipping competitiveness based on policy relevance, indicator quality, and conceptual alignment.

In the equal-weighted specification, all indicators were assigned the same weight, irrespective of tier. The resulting index scores were recalculated, and changes in country rankings were compared to the original results. The findings are summarised as follows:

Metric	Value
Number of countries with no change in rank	4
Number of countries shifting ≥5 ranks	14
Maximum upward shift	+10
Maximum downward shift	-8
Median absolute change	4

These results indicate that while the majority of countries experienced only modest shifts in rank, a subset saw more substantial movements. This is expected, as changes to the weighting structure alter the relative importance of each indicator, and countries that score well on previously underweighted indicators may rise in the rankings, while others may fall.

For example, New Zealand scores highly on governance-related indicators, which aim to capture the conduciveness of the regulatory environment to shipping performance. These are clearly supporting indicators; however, assigning them the same weights as, e.g. LSCI or Fleet value, would elevate New Zealand by ten places in the ranking.

Therefore, the fact that the index responds to changes in weighting confirms that the structure is meaningful, yet the shifts are moderate enough to demonstrate that the overall rankings are not unduly sensitive. This corroborates the robustness of the index while highlighting the rationale for using an informed weighting system.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