

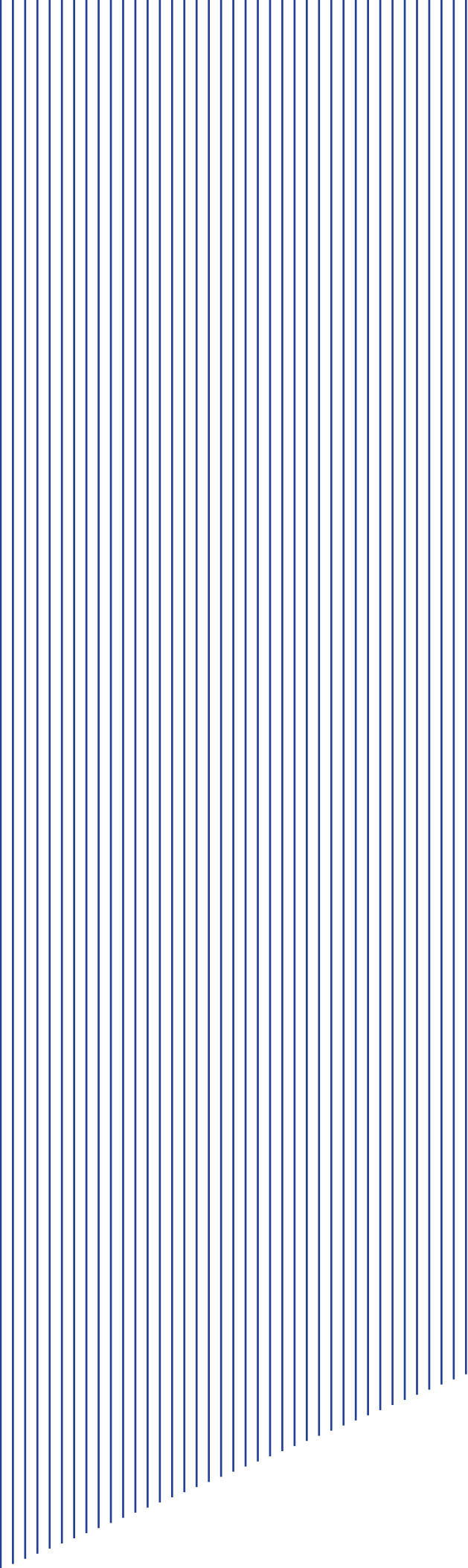


UK
Board
of Trade

MARITIME TRADE

Embracing the Ocean: delivering the trade benefits
of the National Shipbuilding Strategy Refresh

A BOARD OF TRADE PAPER
MARCH 2022



Foreword

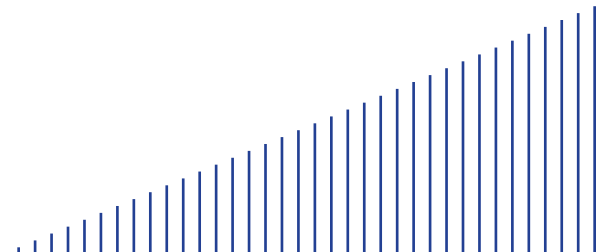
Trade and the sea have always been inseparable and the world's reliance on healthy and productive oceans runs deep. Government recognises the importance and huge future potential of the UK maritime sector. Shipbuilding and our maritime industries can Level Up coastal areas, increase economic growth and resilience, help us deliver Net Zero and strengthen our national security.

I welcome this Board of Trade exploration of a rapidly growing, changing, global blue economy and the position of UK trade within it. This report represents an important step towards defining an ambitious trade agenda in support of the refreshed National Shipbuilding Strategy as the maritime industry strides into the fourth industrial revolution.

Leading themes which emerge are the need to connect world-class UK technology to global gaps, such as sustainability and maritime protection, and influence positive change in the sector by leveraging our strengths in maritime services and regulation. Other themes include driving more investment into maritime infrastructure and addressing distortions in the global sector that diminish innovation, resilience and competitiveness.

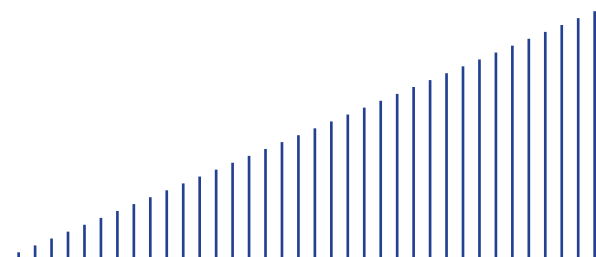
The UK has a distinguished reputation as a maritime nation and champion of the whole system solutions demanded by the 21st century global maritime sector. I am absolutely convinced that, working together as government and industry, we can ensure that our maritime future is even brighter than our illustrious maritime past. The Department for International Trade is ready for that challenge.

The Rt Hon Anne-Marie Trevelyan MP
Secretary of State for International Trade and
President of the Board of Trade



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Executive Summary

As both an island nation and major global trading power, the maritime domain is fundamental to UK prosperity and security. This scoping paper by the Board of Trade highlights the importance of the maritime domain for international trade and explores opportunities to strengthen the UK contribution to the global sector through trade-led approaches. Four main points to draw from this paper are that:

1) The maritime domain is crucial to trade and the global sector itself is growing strongly.

Approximately 95 per cent of all UK imports and exports by volume are moved by sea and virtually all data entering and leaving the UK travels by subsea cable.¹ Overall, the maritime sector supports over £47 billion in business turnover, £17 billion in Gross Value Added and 220,100 jobs across the UK.² Global maritime trade volumes are expected to treble by 2050³ and the Organisation for Economic Co-operation and Development (OECD) estimates the value added generated globally by ocean-based industries could double from £1.1 trillion in 2010 to £2.3 trillion in 2030.⁴

2) As recognised in Maritime 2050, the sector faces interconnected challenges and rapid change.

The biggest challenge in the maritime transport sector, for example, may be investment in reaching net zero goals. Shipping currently represents around 2.6 per cent of total global emissions but this share could more than treble by 2050.⁵ However, maritime transport is also affected by concentrated supply-chains, protectionism and tensions around maritime choke points.⁶

3) The UK is well-positioned to provide compelling solutions to global maritime challenges.

Growing the UK's share of the global maritime sector can help the UK Build Back Better, supporting Levelling Up, Net Zero and Global Britain. As a science and technology superpower, the UK is a significant naval shipbuilder, already has around five per cent market share in the nascent green shipbuilding sector⁷ and is a global leader in subsea technology.⁸ Trade-led interventions should focus on UK strengths, such as financial and professional services, and be guided by a systems approach. Government-to-government (G2G) approaches are an important tool framing exports, investment and innovation partnerships.

4) Government and industry must work together with greater urgency to compete internationally.

Major shipbuilding nations are adapting to change and moving quickly to consolidate their existing dominance.⁹ The Board of Trade welcomes government's renewed focus on shipbuilding and the wider maritime sector, represented by the refreshed National Shipbuilding Strategy (NSbS). As part of the Strategy, DIT should emphasise building links to global maritime customers and working in partnership with UK industry and the National Shipbuilding Office to identify comprehensive UK solutions. DIT should also develop a clear UK maritime proposition for inward investors. The launch of the new intelligence-led Maritime Capability Campaign Office represents a significant step towards these goals. New DIT interventions to boost exports and investment in the sector will be supported by UK Export Finance and UK trade policy committed to the free flow of trade, capital, data, innovation and ideas.



The Board of Trade

The Board's role

The Board of Trade is a government body that has existed in various forms for almost 400 years – even before the days of Adam Smith and David Ricardo. Its purpose is to raise awareness of the benefits of international trade, campaign globally for free and fair trade and work with international counterparts to build a consensus for open markets and fight protectionism. It works alongside, but is separate from, the Department for International Trade.

The President of the Board of Trade is the Secretary of State for International Trade, the Rt Hon Anne-Marie Trevelyan MP. The Board is supported by advisers to the Board of Trade, who are drawn from academia, business, and government. They are independent and are appointed on one-year non-remunerated terms.

The Board meets quarterly at locations across the UK's regions. It produces reports and papers on important trade issues, the publication of which is timed to coincide with Board meetings. This is the fourth quarterly publication under the new Board of Trade.

Scope of this paper

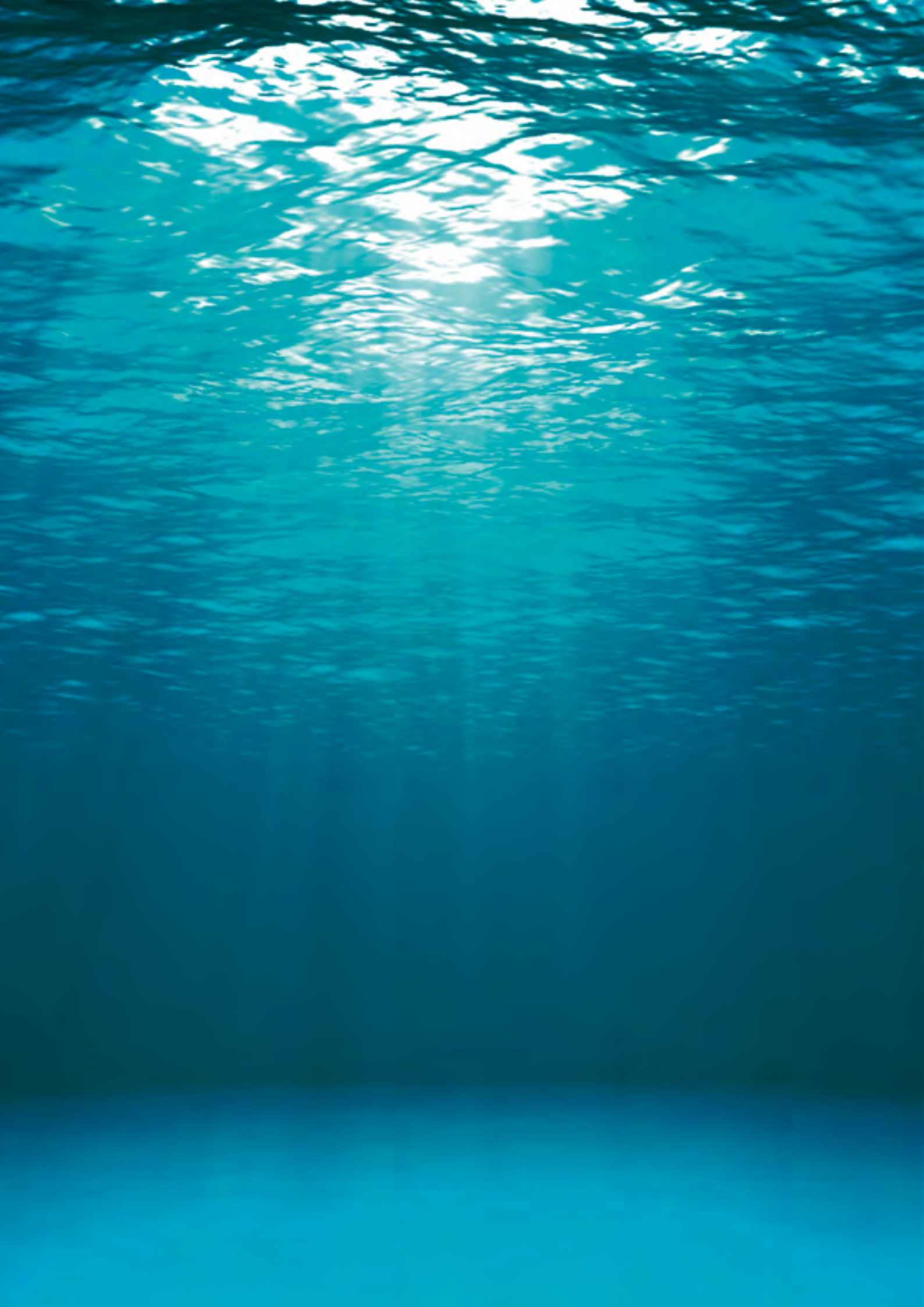
The Board's publications are intended to bring new thinking to, and inform debate on, matters of UK trade policy. HM Government will consider the recommendations of Board of Trade papers but is under no obligation to pursue them and this paper does not reflect government policy. Board of Trade publications often include reflections from the Board's advisers which may differ from existing HMG policy. Where these are included, they are attributed to the adviser directly.

Board members and advisers

The President of the Board of Trade is the Secretary of State for the Department for International Trade.

The 15 advisers are:

- Secretary of State for Scotland
- Secretary of State for Wales
- Secretary of State for Northern Ireland
- Minister for Investment
- Minister for International Trade
- Minister for Trade Policy
- Minister for Exports
- Karen Betts
- Emma Howard Boyd CBE
- Rt Hon Patricia Hewitt
- The Hon Tony Abbott
- Lord Hannan of Kingsclere
- Michael Liebreich
- Dr Linda Yueh
- Rt Hon the Lord Mayor of the City of London, Vincent Keaveny



Global maritime sector trends

While sometimes overlooked, maritime transport is the backbone of international trade. Over more than half a century, reliable and efficient containerisation, dry bulk carriage and tankers have transformed the global trading system. This has resulted in productivity gains through global supply-chains, deeper economic partnership between nations and more harmonised trade infrastructure.¹⁰ Approximately 90 per cent by volume of traded goods are carried over the waves and¹¹ maritime connectivity is considered a crucial factor in countries' trade costs and competitiveness.¹²

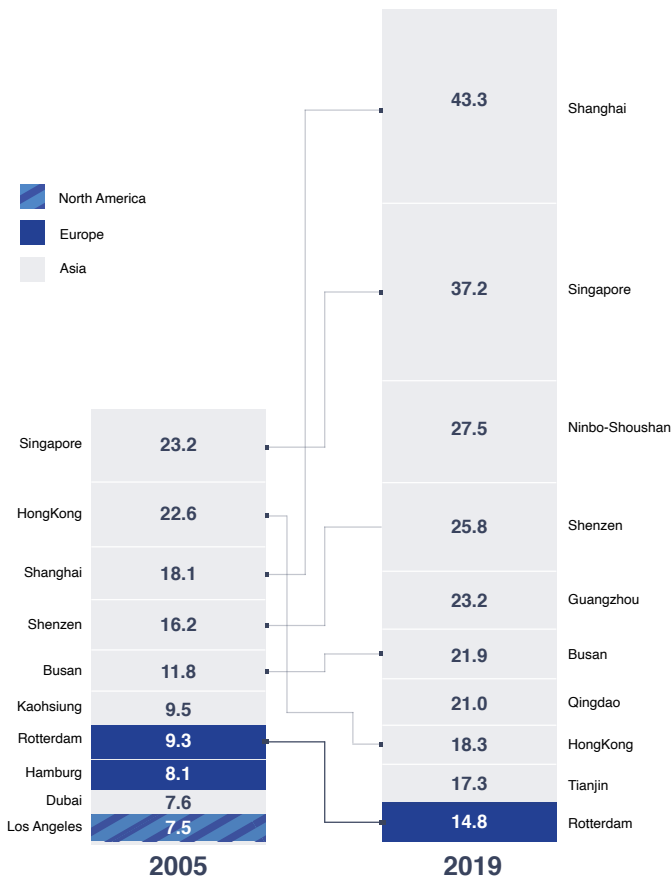
As recognised in both *Maritime 2050: navigating the future* and *Global Britain in a Competitive Age: the Integrated Review of Security, Defence, Development and Foreign Policy*, the global maritime sector is subject to disruptive, interconnected, change.¹³ Broad themes include:

- a. increased demand for maritime freight, with volumes trebling by 2050¹⁴
- b. coordinated action by governments, industry and civil society on sustainability, including achieving Net Zero¹⁵
- c. digital transformation connecting and automating entire logistics chains¹⁶
- d. growing tension around maritime chokepoints and concerns about supply chain resilience¹⁷
- e. increased dependence on the subsea domain to meet demand for data and clean energy¹⁸
- f. extreme weather events and longer-term impacts of climate change¹⁹



Welding new steel plates on a ship's hull during repair work on a ship in a dry dock.

Figure 1. The World's Biggest Shipping Hubs

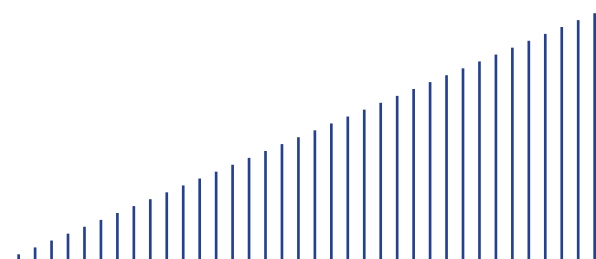


Source: <https://www.shipfreight.com/knowledge-series/largest-ports-in-the-world/>

These trends represent some significant challenges for the global sector. For example, large-scale investment in vessels and port infrastructure will be needed to decarbonise the sector, boost resilience and address stubbornly high maritime transport costs following the coronavirus (COVID-19) pandemic.²⁰

However, overall, the UK should view rapid change in the sector as an opportunity that plays well to UK strengths. Tech and digitalisation, for example, is a core UK strength and will have a positive, transformative, impact on costs, carbon emissions, resilience and supply chain traceability.²¹

The interconnected nature of maritime trends is also a major opportunity for UK firms, many of which have an established reputation for systems thinking and flexible, collaborative, integrated, solutions. This UK capability will be enhanced further by the refreshed National Shipbuilding Strategy which aims to create a globally successful, innovative and sustainable UK shipbuilding enterprise contributing a coherent, collaborative, whole-system perspective to global challenges. The Strategy is led by the Defence Secretary, as Shipbuilding Tsar, with a new cross-government National Shipbuilding Office (NSO) to lead and cohere activity across Whitehall.





Case study

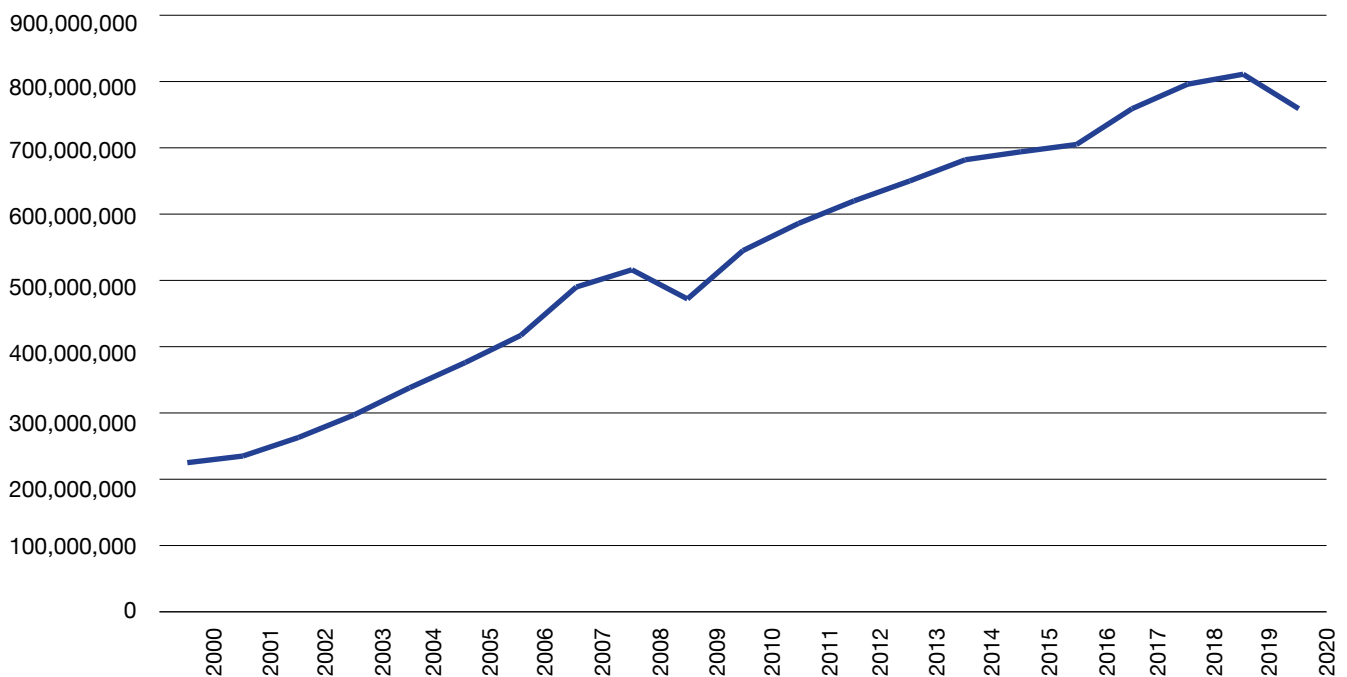
Maritime UK Regional Cluster Development Programme

Maritime UK, together with its partners, is developing and rolling-out an ambitious 'Regional Cluster Development Programme', an initiative set out in *Maritime 2050: Navigating the Future*. The primary role of Regional Cluster Organisations is to create regional growth by increasing the profile of the region as a champion for the maritime industry, supporting communication between government and key industry stakeholders and fostering intra-regional collaboration. They also support exports and foreign direct investment, and facilitate networking and mentoring programmes. Current Regional Cluster Organisations members are Mersey Maritime, Maritime UK Solent, Maritime UK South West, Team Humber Marine Alliance, Belfast Maritime Consortium and the Scottish Maritime Cluster.

Figure 2. Container port traffic

(TEU 20 foot equivalent units)

A TEU or Twenty-foot Equivalent Unit is an exact unit of measurement used to determine cargo capacity for container ships and terminals.



Source: World Bank <https://data.worldbank.org/indicator/IS.SHP.GOOD.TU>



Astute Class submarine Audacious under construction at Barrow-in-Furness shipyard in Cumbria

The role of trade-led solutions

Exports and investment deliver productivity and jobs and are essential drivers of government's Levelling Up, Net Zero and Global Britain agendas. The Export Strategy *Made in the UK, Sold to the World* challenges businesses and government to reach £1 trillion in exports by the end of the decade. It cites strong partnership between the private and public sectors, tilting towards the Indo-Pacific and other new markets, and support for businesses all across the UK.²² The strategy references shipbuilding specifically as a sector of national significance and focus for DIT.

Trade and investment interventions can play an important role in addressing many of the challenges faced by the global maritime sector. Trade and investment interventions may play a particularly useful role in the following areas:

a. Connecting buyers and sellers in a complex marketplace:

Plugging information gaps regarding global opportunities and UK strengths, as well as connecting UK businesses to specific international buyers, as set out in the Export Strategy. Given the diversity of the maritime sector, overlaps in capability with adjacent sectors and the rapid introduction of new technology, making these can help ensure that the global sector has access to the best UK solutions on sustainability, technology and security.

b. Addressing the unique needs of maritime defence and security:

As highlighted in the Defence and Security Industrial Strategy, the UK needs to maintain a sustainable defence industrial base to safeguard its access to sensitive and operationally critical areas of capability for our national security, along with maximising the economic potential of one of the most successful and innovative sectors of British industry. As technological advances accelerate and maritime security threats grow and diversify, the UK defence and security industry must adapt and invest at pace. Exports are an essential enabler of this investment, supporting UK critical mass on a wide range of technologies.

c. Supporting much needed maritime investment both in the UK and overseas:

The overall investment costs of fully decarbonising global shipping by 2050 are estimated at approximately £1 to £1.45 trillion. Approximately 85 to 90 per cent of this cost is estimated to be for land-based infrastructure for low and zero-carbon fuels, demonstrating the interconnectivity of the maritime sector.²³ The financial case for substantial private investment in the transition to low carbon shipping remains challenging as vessels and fuelling infrastructure have long asset lives. Uncertainty around pricing and technologies likely to be supported by policymakers in the future represents a risk of unproductive or stranded assets.²⁴ Coordinated approaches are needed to assure markets and connect investment opportunities.

d. Trade finance:

UK Export Finance (UKEF) can play a pivotal role in supporting UK maritime businesses seeking to export or fulfil an overseas contract. UKEF's mission is to ensure that no viable UK export fails for lack of finance or insurance from the private sector, while operating at no net cost to the taxpayer. An exporter in the sector can benefit from a range of products offered by UKEF to enable UK companies to:

- i) win contracts, through the attractive financing terms we can offer to overseas buyers of UK goods and services which can help exporters make their offering more competitive
- ii) fulfil orders by accessing the bond and working capital support they need, giving them the confidence to take on more contracts and increase their turnover
- iii) get paid by managing challenging risks through insurance where the private market is not able to offer cover

e. Addressing barriers to trade and market distortions:

The maritime sector is characterised by market-distorting state subsidies and, in many cases, state-owned enterprises (SOEs). UK businesses are increasingly competing against a range of these practices, in particular harmful industrial subsidies and opaque and unfair practices by SOEs. A research report²⁵ by the OECD in 2019 into the role of governments in shipbuilding suggested that many government interventions inhibited a 'level-playing field'. Another OECD report in 2021 explored the role of SOEs in shipbuilding.²⁶ The study found that almost a third (32 per cent) of the world's shipbuilding companies were SOEs, representing 35 per cent of global production. These SOEs were likely to have lower productivity and higher indebtedness than private enterprises. A recent International Chamber of Shipping study also reveals substantial barriers to trade in maritime sector due to increasing protectionism in maritime economies.²⁷



Case study

Parkol Marine Engineering

Yorkshire-based boat builders, Parkol Marine Engineering, were able to sell new fishing trawlers to Ireland thanks to a UK Export Finance guarantee. In early 2020, Parkol was commissioned by Irish fishing company D&N Kirwan to build a new 27-metre-long motorised trawler at their Middlesbrough site. To fulfil this deal, worth over £3 million, Parkol needed the capital stage payments to be guaranteed to the full value of the contract. The coronavirus pandemic then struck during the design stage of the project. Parkol were forced to furlough staff at both of its sites until measures could be introduced to safeguard the workforce. To secure the guarantees needed to build the boat, Parkol's bank put them in touch with their local UKEF representative. UKEF worked with NatWest to put in place a series of government-backed advance payment guarantees in two currencies that enabled the deal to go ahead.

f. **Providing leadership within the international trade and investment community:**

The UK position as a major trading nation with an independent seat at the World Trade Organization (WTO), global leadership in maritime services and strong reputation as a maritime regulator, represent an opportunity to provide thought leadership and drive positive change. A major challenge for maritime decarbonisation is concern from some countries that policy measures such as carbon taxes, as well as the cost of adopting low carbon technologies, will place them at a competitive disadvantage.²⁸ Government should explore the role of trade-led solutions supporting an equitable low-carbon transition through multilateral fora, including the WTO. Optimising arrangements around open registries, ensuring that flag states comply with legal requirements, is another area for potential focus.



Large container ship being loaded at Felixstowe Port



Case study

Open registries

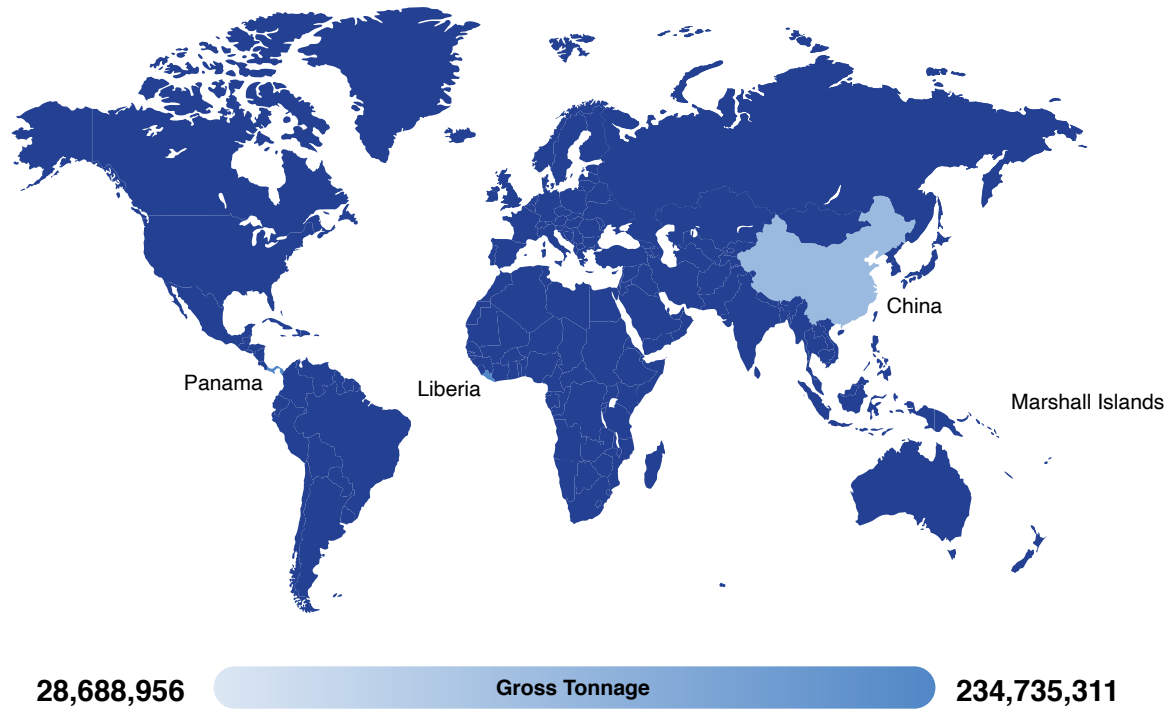
The United Nations Convention on the Law of the Sea (UNCLOS) places the primary responsibility for regulatory matters such as vessel inspections, ensuring safety, pollution prevention and certification on the individual flag states, making them crucial to enforceability of international standards. Flag states are sovereign in their decision to accept a ship and since they do not have nationality requirements, this has led to the emergence of open registries also known as the “international registry”. Almost 73 per cent of the world fleet is flagged in a country not matching vessels’ principal ownership.

Whilst many open registries have a good track record, unfortunately some of them have been associated with poor seafarer working conditions, involvement in illegal trade, lax environmental regulations, substandard vessel conditions and unlawful shipbreaking.

A regime known as Port State Control has been established, enabling individual states to inspect foreign flagged vessels in their waters to check whether they comply with the major International Maritime Organization (IMO) Conventions. There are potentially significant sanctions for the non-compliant vessels and the IMO has a system for auditing the implementation of states’ obligations under the IMO instrument.

Shipping Industry Flag State Performance Tables are published annually by The International Chamber of Shipping and the UK Ship Register is consistently positioned as one of the world’s top performers. The UK continues to work closely with the IMO to encourage the highest standards to prevail across all administrations.

Figure 3. Flag States



Source: Lloyd's List <https://lloydslist.maritimeintelligence.informa.com/LL1134965/Top-10-flag-states-2020>

UK strengths and opportunities

Trade-led solutions to global maritime challenges should be focused on current and potential UK strengths. While recognising that the UK currently has only a two per cent share of the global civil maritime market, lagging behind European competitors, the UK has important strengths to build upon supported by the NSbS. These include maritime services, naval shipbuilding, global leadership on tech and a flexible private ports sector. The Board of Trade believes that these strengths must be leveraged in an integrated way to deliver distinctive UK offers that work for global customers.

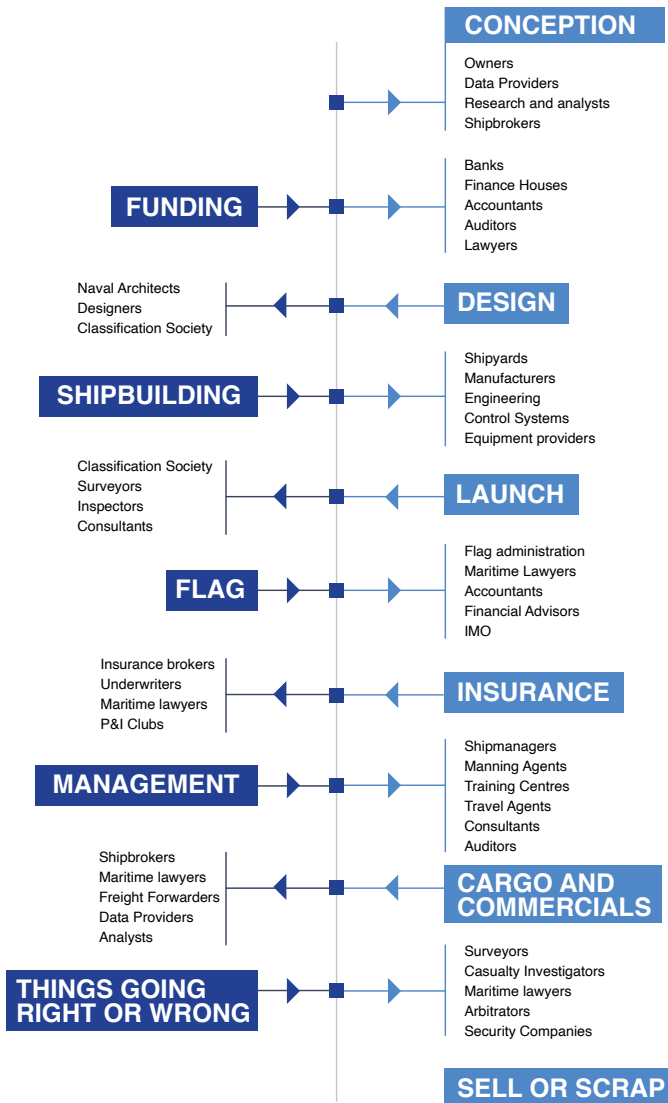
Shipbuilding and technology

Shipbuilding is a top government priority which supports Levelling Up, the Union, prosperity and national security. The maritime sector is entering a transformational fourth industrial revolution with the emergence of smart and autonomous vessels connected to wider infrastructure.

The life cycle of a ship is complex with multiple decision points. Challenges for the adoption of technologies in the global shipbuilding that play to UK strengths as a science superpower and leading provider of services include:

- difficulty securing finance in the face of uncertain demand and technology
- technological issues relating to the safety and lower energy densities of some emerging fuels
- a complex shipping structure with a need to coordinate many actors
- vulnerability to cyber-attacks accompanying greater connectivity²⁹

Figure 4. Life cycle of a ship



Source: DIT infographic

Naval shipbuilding is an important export UK success story. The UK's ability to incorporate exportability at the design phase and work closely with defence partners to provide flexible solutions has been crucial. In the case of the world-leading Global Combat Ship, successful engagement with Canada and Australia has resulted in a 32-ship programme supporting 10,000 UK jobs. Another example of this collaborative approach is ArrowHead140, which has been contracted by Indonesia and has generated interest in both European and Indo-Pacific markets due to strong platform design, competitive pricing and, like the Global Combat Ship, its use by the Royal Navy.

Defence and security sales open long-term partnerships between navies, governments and industry. These partnerships support national security objectives, pave the way for future defence exports and create supply chain opportunities for smaller firms, supporting Levelling Up. As set out in the Defence and Security Industrial Strategy, the UK needs to maintain a sustainable defence industrial base to safeguard its access to sensitive and operationally critical areas of capability for our national security. This would serve to maximise the economic potential of one of the most successful and innovative sectors of British industry.

In the civil sector, the UK can compete globally for complex vessels, such as offshore work boats, fast and ROPAX ferries, research vessels and expedition cruise ships. Indeed, the UK shipping technology sector was worth £4 billion in 2019 and is estimated to be worth £13 billion per year by 2030.³⁰ Alongside globally competitive vessels, UK capability in services, decarbonisation, marine engineering, digital and tech can make a substantial contribution to the global shipbuilding supply chain.

The UK has a high quality and successful yacht-building and leisure boatbuilding industry. Consumers' understanding of the blue economy can be shaped by their leisure experiences. UK builders can be a platform for our ambitions in light-weighting, new materials, and sustainable technology. With growing populations and affluence, the UK is brilliantly placed to take advantage of increased demand from international consumers following the pandemic. Many new customers are taking up boating for the first time and cruise ships and their terminals are set to bounce back also. In 2019 exports of £1.6 billion were achieved driven by overseas sales of large, inboard powered motor yachts above 15 metres in length. For the larger builders like Sunseeker, Princess and Oyster exports are up to 90 per cent of their turnover, a testimony to the reputation of UK boatbuilding, which are recognised for their quality, technology, and style.³¹

As transition times between emerging and mature maritime technologies shorten, agility and longer-range customer insight will be critical components of future success³². New niches will emerge within the global shipbuilding supply chain, creating potential first mover advantage, and there are likely to be opportunities for innovative and successful UK companies from outside the sector. The established UK reputation for novel approaches, whole system thinking and collaborative business practices are likely to be an advantage. An

example of this in action is the MarRI UK initiative, which was formed in 2019 bringing together industry, academia and government to enable research and innovation by commercialising new technologies and systems. Some of these projects included electrification of domestic

passenger ferries, batteries for marine applications and live sea-mapping.³³

IN FIGURES: digital technology in the maritime industry

- The global maritime digital technology industry is forecasted to be worth £263 billion by 2030
- The adoption of digital technology in the maritime sector will be 3 years ahead of previous estimates by the end of 2022
- The pandemic drove an extra £515 billion of retail trade online in 2020
- 1 in 20 ports worldwide sped up their investment timeline in digital technology
- Average daily data consumption per vessel increased from 3.4 to 9.8 gigabytes between January 2020 and March 2021
- The UK digital maritime industry will turn over £4.8 billion this year; a 23 per cent increase over pre pandemic forecasts
- UK businesses represent 20 per cent of the entire global offering in ship operations and management technology

The UK has significant wider capabilities derived from a strong scientific and research and development base and a history of being at the cutting edge of maritime science. UK defence spending through research and development initiatives is contributing to the advancement of autonomous surface and sub-surface vessels. Science and technology teams are considering concepts for autonomous systems in ports and warehousing using 5G communication technologies. The UK Hydrographic Office is a major source of nautical mapping and its products are used in around 80 per cent of all ships. The world-class UK space sector has the potential to grow provision of earth observation, satellite communications, position navigation and timing (PNT) and maritime autonomy. Lloyd's Register, the UK's classification society, has also been innovating rapidly at the Satellite Applications Catapult with remote vessel inspection products. The UK has set out its bold ambition to be a leader in much of this technology through the National Space Strategy.³⁴ Close partnership between DIT and other government departments ensures that innovative UK companies are able to access export opportunities.

Successful Clean Maritime Demonstration Competition project - twin motor zero emission powertrain for commercial workboats

The UK Government invested over £23 million into the Clean Maritime Demonstration Competition, which support R&D projects across the UK as part of efforts to deliver Net Zero by 2050. Ecomar Propulsion, leading a consortium of four businesses, is developing one project supported by the scheme. The project aims to rapidly decarbonise marine workboats by using powerful twin engines that use only electricity and hydrogen fuels. This is just one of 55 clean maritime projects supported by government this year to accelerate the design and development of zero emission technologies in the maritime sector.





3D rendering of Liquid Hydrogen renewable



energy in vessel

Sustainability

Green trade presents a major opportunity for the UK, creating high-value jobs in the low-carbon economy, driving sustainable growth in all corners of the nation, and fuelling technological innovations. The UK can spearhead the global green transition by developing innovative green technologies to export to the world and by doubling down on its success as a global hub for green finance. The Clean Growth Strategy³⁵ estimates that the UK's low-carbon economy could grow by 11 per cent per year between 2015 and 2030, four times faster than the rest of the economy, and deliver between £60 billion and £170 billion of export sales of goods and services by 2030. The UK has been one of the leading nations of this transition.

UK ambitions for zero emissions shipping are outlined in Maritime 2050, with a clear national action plan on achieving the goals set in the environmental route map Clean Maritime Plan, encompassing the commitments within the Clean Air Strategy. The UK is also fully committed to decarbonising the maritime sector through its Transport Decarbonisation Plan. The Annual Report published by the Climate Change Committee in June 2021 also underlines the risks to global shipping from climate change.³⁶

At COP26, the Clydebank Declaration for Green Shipping Corridors was signed.³⁷ The signatories included 22 states from across the globe, expressing their support for the establishment of green shipping corridors - zero-emission shipping routes between two or more ports - to speed up the decarbonisation of the maritime sector.

The International Maritime Organization is the key global maritime regulator and, in April 2018, adopted the Initial IMO strategy on the reduction of greenhouse gas (GHG) emissions from ships, including targets to cut the carbon intensity of all ships by at least 40 per cent by 2030, and reduce total GHG emissions by at least half by 2050 compared with their 2008 levels.³⁸



Case study

MarRI-UK Zero Carbon Coastal Highways

Maritime Research and Innovation UK (MarRI-UK) has recently set out their vision for a fleet of zero-carbon coastal ships to transport goods around the UK's ports by 2030. The Zero-carbon Coastal Highway Programme aims to transform reliance on road haulage and could enable the UK to become a leading innovator in the global maritime sector. The ambition is to move more than 25 per cent of UK's land haulage by tonne kilometre via a zero-carbon automated fleet by 2030. The organisation estimates that a successful transition to the network will add £1.8 billion additional revenue to the UK, create 39,000 extra jobs and reduce land-based CO₂ emissions by 30 to 40 per cent. Creating a radical new zero-carbon approach to the transportation of goods as part of an integrated autonomous system has not been attempted anywhere in the world. It could allow the UK maritime shipbuilding and service sectors to address the world's ever-expanding need for high quality, sustainable and advanced maritime transportation.



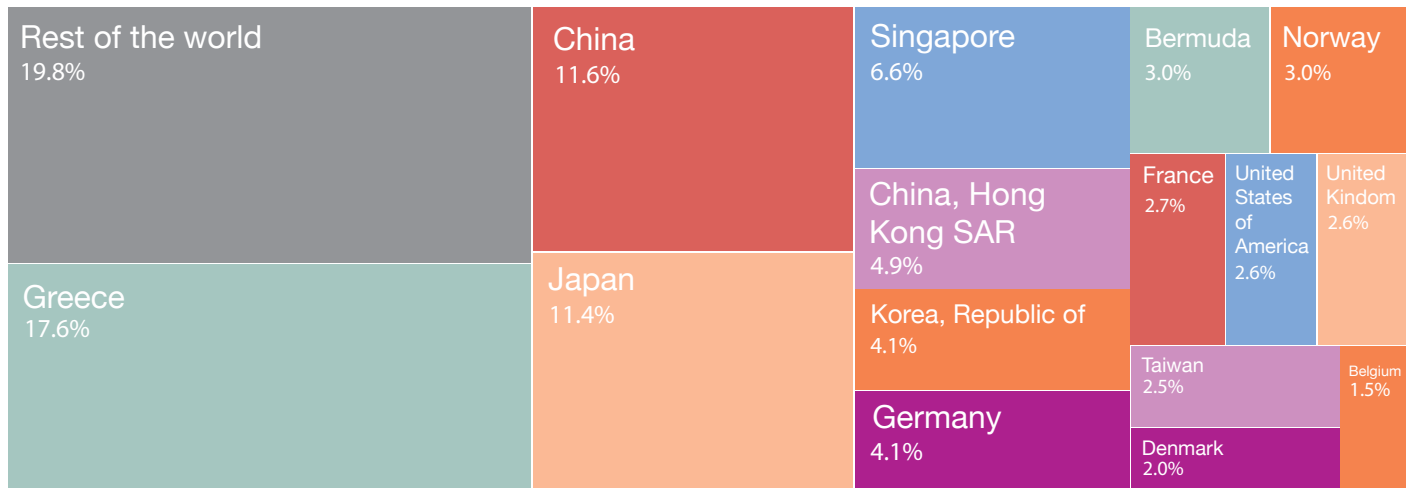
Shipping containers

Realising IMO ambitions requires a range of actors including governments, shipbuilders, ship owners, infrastructure operators and providers of financial services to take an urgent and coordinated approach. Evidence shows that without additional measures, shipping emissions are projected to increase from about 90 per cent of 2008 emissions in 2018 to between 90 to 130 per cent of 2008 emissions by 2050.³⁹ The Royal Navy has decarbonising ambitions embedded within its shipbuilding planning processes. Current concepts for future vessels are part of government commitment to reduce carbon emissions.

The overall investment costs of fully decarbonising global shipping by 2050 are estimated at approximately £1 to £1.45 trillion. Approximately 85 to 90 per cent of this cost is estimated to be for land-based infrastructure for low and zero-carbon fuels, demonstrating the interconnectivity of the maritime sector.⁴⁰ Importantly, UK firms captured around five per cent of the nascent green shipbuilding sector⁴¹ and low carbon technologies are expected to represent 80 per cent of a £190 billion global sector by 2050⁴². Decarbonisation of the maritime sector creates an opportunity for the UK to develop not only

hydrogen fuels but also to become a hydrogen hub for shipping. The Department for Transport estimates that by 2050 there could be demand for between 75-95 Terawatt-hours (TWh) of hydrogen-based fuels, including ammonia, in international shipping.⁴³ In March 2021, the UK's first hydrogen transport hub was launched in Tees Valley, which already produces more than 50 per cent of the UK's Hydrogen, linking transport modes with industries and retail.⁴⁴ The UK Hydrogen Strategy (2021) has a target of at least 5 gigawatts (GW) of renewable hydrogen electrolyser capacity by 2030 with projects underway in Liverpool, Milford Haven - the £4.5 million Energy Kingdom and Aberdeen.

Despite this growth, the financial case for substantial private investment in the transition to low carbon shipping remains challenging as vessels and fuelling infrastructure have long asset lives. Continued uncertainty around pricing and the low carbon technologies likely to be supported by policymakers in the future represents a risk of unproductive or stranded assets.⁴⁵ Ship owners also need to ensure that any innovations adopted can secure finance and insurance over their lifetime.

Figure 5. Vessel Ownership

Source: Info Maritime <http://infomaritime.eu/index.php/2021/08/22/top-15-shipowning-countries/>

The UK has the largest share of worldwide marine insurance premiums and shipbroking transactions at 35 and 26 per cent respectively.⁴⁶ It also hosts leading maritime governance and regulatory bodies, such as the International Maritime Organization and the International Association of Classification Societies. This intersection, together with the UK government's global leadership on climate change, position the UK uniquely as a global broker, forging the consensus needed to address the investment gap at the heart of maritime decarbonisation. The global ambition is not yet translating to important investment or financing decisions. The UK should use its central role to convene global regulators and global maritime businesses to find ways to reset traditional maritime business models. Delivering this consensus means sustained engagement between global regulators and global business to review traditional and often siloed maritime business models. Government should leverage such engagement to position long-range UK solutions, ranging from innovation to professional services.



Case study

Lloyd's Market Association

Lloyd's Market Association is a good example of a service provider which provides professional and technical expertise in areas ranging from model policy wordings to the implementation of innovative technologies. It connects with members to identify and resolve issues facing the market, and works in partnership with Lloyd's and the other market associations to influence initiatives and outcomes. Their work on coming up with innovative solutions to model their own insurance underwriting such as creating a system that can measure the carbon intensity of underwriting portfolios is being piloted with a group of managing agents in 2022 before reaching the marketplace in 2023.

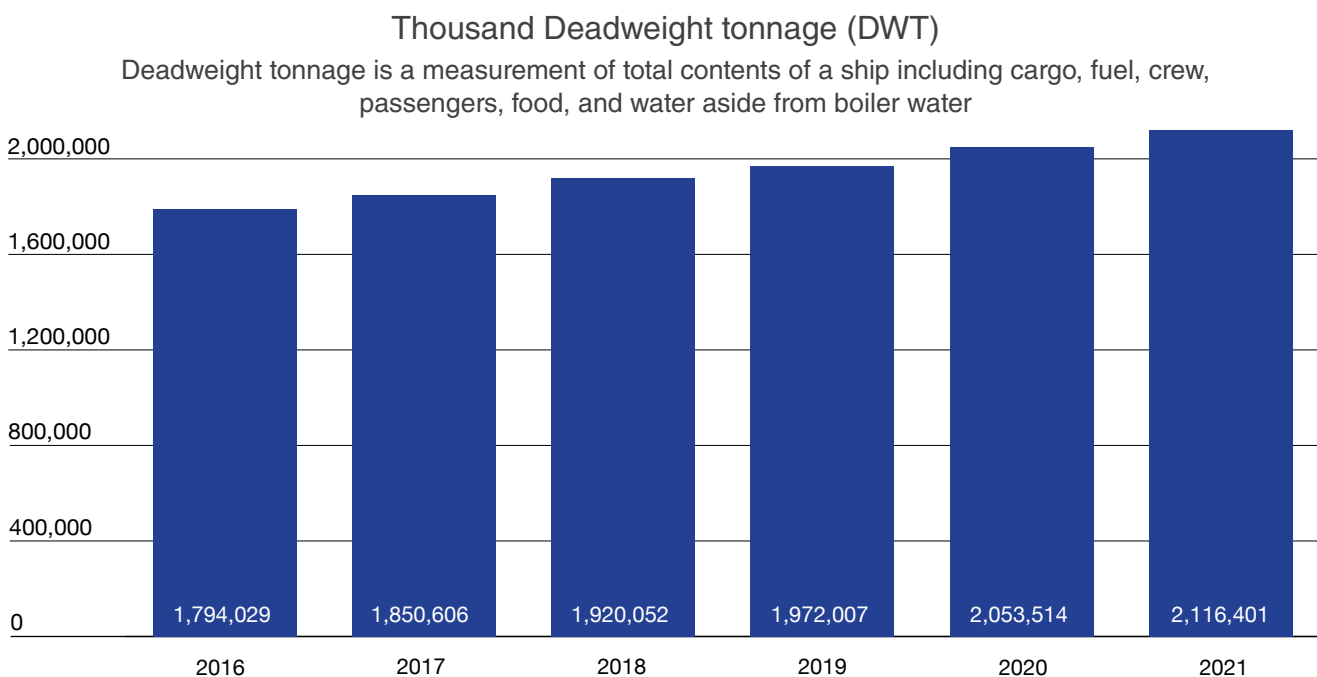
In parallel with decarbonisation, significant challenges exist in maintaining healthy and productive oceans. Approximately 3 billion people rely on the ocean for their food security and livelihoods, with developing countries particularly dependent.⁴⁷ The ocean is facing serious and increasing threats from over-exploitation, pollution, biodiversity loss and climate change. The UK Blue Planet Fund represents a major step forward in tackling degradation of the oceans and encouraging

sustainable growth.⁴⁸ Alongside Official Development Assistance, trade interventions can have an important role in supporting the ocean environment, ranging from measures detailed in free trade agreements, to financing access to cutting-edge UK technologies through UK Export Finance. Addressing emerging environmental challenges, such as deep-sea mining, early can enhance the positive role of trade and ensure that UK technologies and services that enable sustainable growth are well-positioned.⁴⁹ As in the case of decarbonisation, the UK can play an important brokering role to drive global investment into initiatives that support Blue Planet Fund objectives on marine biodiversity and livelihoods. The UK will also continue to campaign for reversing biodiversity loss by 2030. It will do this by improving ecosystem resilience, species recovery and tackling the causes of nature loss⁵⁰ through leading our Global Ocean Alliance⁵¹

and co-chairing of the High Ambition Coalition for Nature and People.

Maritime security plays an important role in sustainability, ensuring that governments can protect and manage maritime resources in a world of increased strategic competition.⁵² UK government plans for maritime security will be set out in the forthcoming National Strategy for Maritime Security. The strategy will reaffirm UK commitment to the United Nations Convention on the Law of the Sea (UNCLOS), freedom of navigation and adherence to the rules based international system. Alongside the National Strategy, DIT will continue to help UK allies and partners access world-class maritime security capabilities through the work of UK Defence and Security Exports.⁵³

Figure 6. World Merchant Fleet Data



Source: Info Maritime <http://infomaritime.eu/index.php/2021/08/22/top-15-shipowning-countries/>



Ships from Japan, UK, US, Canada and Netherlands in formation during Exercise Pacific Crown in the Philippine Sea



Astute class submarine HMS Ambush during sea trials near Scotland

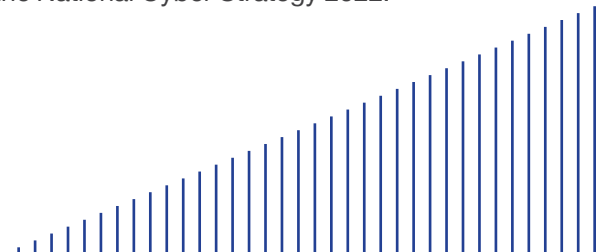
Infrastructure and Freeports

Maritime infrastructure has grown in several new ways in recent decades. Among the most important changes is the seas' increasing role as a source of energy. As of 2020, the total worldwide offshore wind power capacity was 35.3GW⁵⁴, with the UK being the global leader with over 10GW of installed offshore capacity representing 29 per cent of the sector. The offshore wind sector is evolving rapidly, incorporating companies transitioning from offshore oil and gas as well as new technologies. As windfarms become larger and operate further from shore, new capability is needed including port infrastructure, manufacturing, vessels and training. Scale is important in the offshore wind sector⁵⁵ and, as a pathfinder market established capabilities in project finance, windfarm development, port and marine capability, specialist engineering, asset management and subsea technologies, the UK is well positioned to expand into this long-term global growth market.⁵⁶

Another new frontier for maritime infrastructure in recent decades has been the growth of subsea data transmission. Around 99 per cent of international communications traffic travels through subsea cables, making oceans the principal route for transmission of ideas as well as goods.⁵⁷ However, demand for data is surging, with global data flows expected to more than

triple between 2017 and 2022.⁵⁸ There are currently approximately 436 submarine cables in service around the world, amounting to approximately 1.3 million kilometres in length,⁵⁹ with 45 more cables expected to be added by 2025.⁶⁰ Subsea networks are also important for power transmission.

The UK is a recognised leader in the subsea sector with a long heritage. Brett's Submarine Telegraph Company laid the first ocean cable across the English Channel in 1850. Global growth in subsea activity presents direct opportunities for the UK subsea industry valued at almost £8 billion a year, an industry in which the UK is a global leader.⁶¹ However, growth in the data transmission, requiring subsea cable infrastructure, is arguably even more important to the wider UK economy, including digital trade. The importance of digital trade to the UK is outlined in the Digital Trade Board of Trade report, alongside the need for partnerships that shape global rules, norms, and standards. Ensuring that, over the long term, norms governing the subsea domain remain consistent with the commitments to the free movement of ideas are essential to UK national security and prosperity. Strengthening the cyber ecosystem and building resilience are recognised as priorities of the National Cyber Strategy 2022.⁶²



COVID-19 has illustrated the resilience challenge for ports and other maritime infrastructure. However climate change is threatening the resilience of global supply chains and international trade routes.⁶³ While such gaps have increased the arguments for investment in technology and digitisation, many ports have initially slowed investment plans in the wake of the pandemic. The Department for Transport holds responsibility for ensuring smooth flows of freight, but the development of UK port infrastructure is primarily in the ports' hands as UK ports are largely privately owned. DIT, however, has an important role in advocating for the trade benefits of efficient ports globally, as well as encouraging investment into both the UK and global port sectors. The predominantly private UK port sector may offer some advantages relative to competitors, including the flexibility to innovate and adopt new technologies.⁶⁴

Freeports provide an excellent opportunity to develop global trade and investment hubs alongside the necessary infrastructure and local economic development. As goods imported into Freeports from abroad are exempt from tariffs, manufacturers in Freeports can import raw materials tariff-free. The finished products can then be re-exported without the requirement to pay duties or transit elsewhere in the UK subject to declaration. In addition to being customs sites, the Freeport model also incorporates tax reliefs on a time-limited basis to incentivise investment in jobs, construction and R&D funding, and support to facilitate development of sites. Freeports, thus, represent a good opportunity to introduce smart shipping and smart ports that will be central to more traceable and automated future freight.

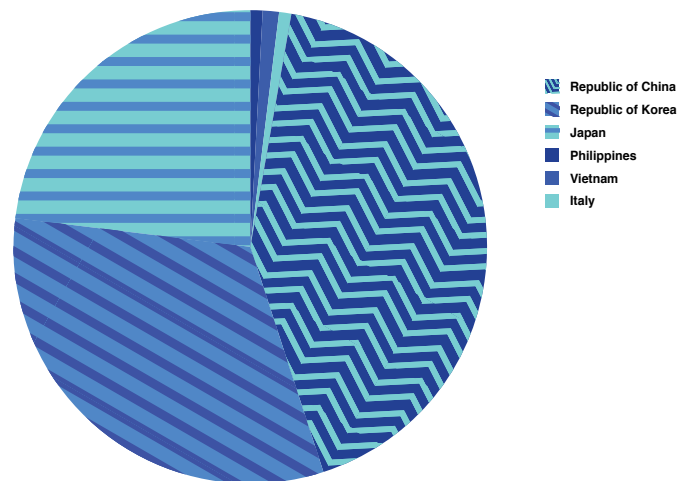




Delivering for the UK maritime sector and for the world

DIT in partnership with UK and overseas businesses has a key role in delivering the National Shipbuilding Strategy internationally. Driving greater maritime exports and investment requires an agile, consumer-centric, approach that targets core UK strengths on the growing and often unmet needs of the global sector. The Board of Trade endorses existing steps that DIT has taken to strengthen its maritime work, cautioning that while opportunity is widespread, DIT should focus on those areas where it can establish a unique contribution, deep capability and clear delivery mechanisms.

Figure 7 – Shipbuilding Market Share



Source: UNCTAD <https://unctadstat.unctad.org/wds/ReportFolders/reportFolders.aspx>

Building export capability

The National Shipbuilding Strategy Refresh establishes a vision for a globally successful, innovative and sustainable UK shipbuilding enterprise. Delivery of the strategy will be led by the National Shipbuilding Office (NSO), cohering contributions across government departments on green technology, productivity, skills, autonomy and exports. The Refresh builds on the 2017 NSbS, broadening its scope beyond naval shipbuilding to include the broader shipbuilding enterprise. This includes commercial and leisure ship and boat building, refit, repair and support, and support for maritime supply chains. Export success will be an integral part of achieving this vision and ensuring the long-term sustainability of the sector. Alongside the comprehensive package of support set out in the Strategy, export revenues will contribute to industry investment in skills, facilities and R&D driving productivity gains. Inward investment can also support this virtuous cycle, creating opportunities for UK industry to benefit from global best practice.

The launch of the MCCO, within UK Defence and Security Exports, represents an important step in delivering increased commitment to the maritime sector. Functioning as the trade and investment 'arm' of the NSO, the MCCO will support delivery of the NSbS and Defence and Security Industrial Strategy by understanding customer needs early and in depth before developing comprehensive and compelling UK offers. To maximise its impact, the MCCO should:

- a. put cross-government collaboration at its core, leveraging other elements of the NSbS Refresh, such as the Thirty-Year Cross-Government Shipbuilding Pipeline that will give businesses the confidence to invest, strengthen productivity and boost exports
- b. establish a global private sector network capturing opportunity, promoting UK solutions and seeking private sector perspectives
- c. strengthen market intelligence, customer insight and analysis in areas such as marine science and technology, supporting earlier intervention and better join-up across government
- d. connect SMEs to global supply chains by developing relationships with major international buyers
- e. use government-to-government approaches where these improve UK competitiveness
- f. take a balanced view of performance, considering in particular Green Growth and Levelling Up indicators, as well as benchmarking against competitors

The MCCO must adopt learning from previous campaigns and ensure continuous improvement. The Australia Global Combat Ship campaign, for example, represented a strong and coordinated effort between government, the Royal Navy and industry. A critical element of success was timely and credible information provided to industry, supporting development of the right product and the investor confidence needed for investment in skills, facilities and R&D.

MCCO approaches should be guided by the Export Strategy which provides a recognised framework for trade promotion best practice. Strong reciprocal relationships with overseas posts, devolved administrations and DIT sector teams whose work intersects strongly with the maritime sector are also likely to be prime ingredients of success. The MCCO should ensure that the UK maritime sector can access cross-cutting DIT provision including measures to support Freeports the recently launched

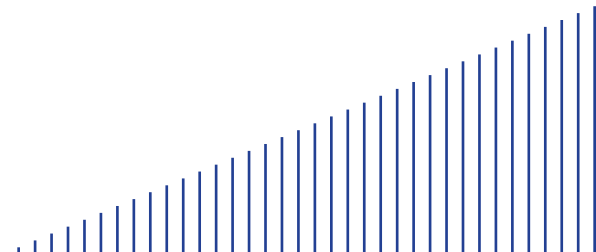
Export Support Service, the Export Academy offering export training to SMEs and the Internationalisation Fund.

The National Flagship will showcase cutting-edge British engineering and green technology and become a prominent UK-built platform for trade promotion and negotiations. Building on the success of the recent deployment of HMS Queen Elizabeth and the Carrier Strike Group, DIT should ensure a clear strategy is in place for incorporating the Flagship into its marketing and communications activity, ensuring that the Department appeals to global businesses and consumers through this unique national asset.

Developing the UK maritime investment proposition

The UK is recognised globally as an excellent destination for inward investment. Major UK strengths are ease of doing business, rule of law, competitive tax rates and the English language. Inward investment is a great driver of international competitiveness across many UK industries, including the ports sector and other sectors that intersect with maritime such as advanced manufacturing, technology and professional services. In the UK maritime sector. Global foreign direct investment (FDI) flows have rebounded following the COVID-19 pandemic, increasing 77 per cent between 2020 and 2021 to £1.22 trillion.⁶⁵

As outlined above, inward investment could make a significant contribution to delivering the NSbS Refresh and should be explored fully, using extensive DIT experience and best practice. Essential areas for exploration include Freeports, green maritime, digitalisation, marine autonomy, maritime tourism and leisure. Investment will be particularly critical to decarbonisation where an exciting UK innovation pipeline needs to be scaled-up. DIT should consider how it can work with the UK Shipping Office for Reducing Emissions (UK-SHORE) to scale-up maritime innovation.





Case study

International confidence in the UK sector

French company OCEA is entering a full share merger with Wight shipyard and bringing its export books to the UK in confidence our ecosystem offers competitive advantage in comparison to their home market. Swedish ferry operator Stena Line and Associated British Ports have revealed a £100 million agreement that will see them jointly develop an extensive new roll-on-roll-off facility in a new terminal at Port of Immingham. Such investments show the importance of invest-to-export projects and are examples of increased investor confidence in the UK Maritime sector.

Inward investors are already noticing government's renewed commitment to the maritime sector but would likely value a clear articulation of the UK proposition. This proposition should cover the:

- areas of the sector where investment would support the NSbS Refresh, including exports
- availability of innovation funding available to the sector, such as UK-SHORE
- availability of funding to support government priorities such as Levelling Up and Net Zero
- availability of support from the UK's world-class export credit agency, UK Export Finance
- policy measures targeting the sector, including Freeports and changes to tonnage tax
- practical support available to investors from DIT, including through High Potential Opportunities

The MCCO should also work with colleagues across DIT to ensure that the UK maritime investment proposition reaches high value investors. This should include institutional investors, pension funds and sovereign wealth funds, in particular those that hold maritime assets globally. Where possible, relationships with major investors should be managed as broad partnerships, such as sovereign investment partnerships, able to address investment future gaps across the UK maritime ecosystem.

Freeports represent particularly exciting opportunities for investment due to their favourable customs, planning, infrastructure and innovation environments. Businesses operating from Freeports, for example, benefit from duty deferral if goods are stored on site and duty inversion when finished goods exit the Freeport, encouraging businesses to export directly. Freeports' operating models are undergoing development making now a good moment to work with DIT to "bake-in" approaches that attract inward investors. HMG recently announced investments of £52 million for the delivery of two green Freeports in Scotland – a model of Freeport focused on green and clean maritime technology. This demonstrates how an initiative could be shaped to address different challenges such as Levelling Up and Net Zero, and how a programme of incentives and benefits could be targeted to attract investment and trade opportunities aligned with HMG priorities.



Case study

Teesside Freeport

In March 2021, Teesside was announced as one of 8 English ports to be given Freeport status under the new government policy. Covering 4,500 acres, the Teesside Freeport is the largest and first Freeport to be operational. It is expected to create more than 18,000 jobs and provide a £3.2 billion boost to the local economy over the next 5 years.

The Tees Valley is a major export region and a go-to destination for renewables, offshore wind and hydrogen manufacturing. This is supported by its close proximity to the majority of UK wind farms. The Freeport also boasts the Tees Offshore Manufacturing Centre and the UK's most developed CCUS project, Net Zero Teesside. This paves the way for a cleaner and greener economy, while helping the area realise its ambition to become the UK's first Net Zero cluster.

UK financial and professional services are a major asset in UK efforts to strengthen maritime exports and investment. In partnership with industry, DIT should leverage the UK position as a leader in green finance to raise awareness of emerging UK investment opportunities. DIT should also explore how relationships with the UK financial and professional services sectors can be leveraged to encourage capital flows into a sustainable, resilient and productive global blue economy.

Leveraging a pro-maritime trade policy

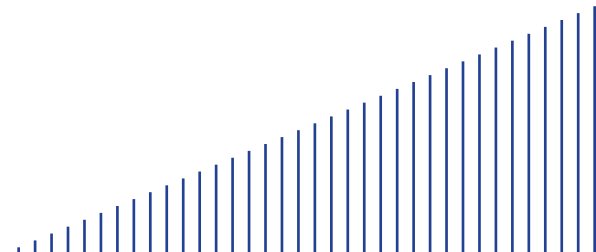
Trade policy can be a powerful tool supporting maritime decarbonisation, power generation, digital transformation, resilience and security, by addressing barriers to trade and unfair practices that damage competition. This can be in the form of free trade agreements (FTAs) and economic partnership agreements between governments. Bespoke maritime agreements can at times have the greatest reach due to the sensitivity of broader agreements. As outlined in the Board of Trade Green Trade Report, the UK can also shape the international trading system by using its convening power.

Since its rebirth as an independent trading nation, the UK has adopted a pro-maritime trade policy. By working closely with UK businesses, the Department for International Trade has developed an understanding of the key priorities and objectives of UK maritime businesses. This includes seeking stability and predictability in the markets where they already operate and better access in markets that are relatively closed. Recent FTA negotiations with Australia provide a tangible example of what FTAs can achieve for the maritime sector. The UK agreed a sectoral annex on international maritime transport services creating greater opportunities for the UK shipping industry. As a result, ships flying the UK flag across the world will benefit from guaranteed market access and fair treatment when operating in Australia. This deal also delivers legal certainty for UK shipping companies and ships operating in Australia, ensuring that businesses in the UK maritime sector can operate and sell their services to Australia with increased confidence that they will not face barriers in the foreseeable future. By agreeing that UK companies and vessels receive fair treatment in accessing ports and port services, this recent FTA supports the £483 million in maritime transport services UK suppliers export to Australia annually.

At the World Trade Organization (WTO) DIT has negotiated access to governments' civil shipbuilding and marine contracts under the government procurement chapter. UK membership of the WTO Government Procurement Agreement (GPA), alongside several UK FTAs, means that UK suppliers can tender for a range of government contracts such as maritime services in Korea and shipbuilding in Norway. For UK suppliers to benefit from opportunities abroad, the UK has committed to a level of openness to suppliers from its trading partners, such as in the coverage of shipbuilding for non-defence purposes in the GPA. This reciprocity keeps opportunities open while also ensuring sensitive public services and production remain protected. DIT also supports exploring ways to extend maritime provisions under the General Agreement on Trade in Services (GATS), a multilateral agreement covering trade in services. The recent International Chamber of Shipping study indicates that the shipping industry is supportive of the resumption of full GATS negotiations in relation to maritime transport.⁶⁶

DIT should explore further integration of trade policy work with NSbS Refresh objectives. This may include:

- a. reflecting maritime sector objectives in discussions on FTAs with India, Canada, Mexico and the Gulf Cooperation Council
- b. factoring concerns in the maritime sector into the UK's international approach to market-distorting practices
- c. ensuring read across between UK positions at the IMO and WTO, for example on decarbonisation, through engagement with the Department for Transport and Foreign, Commonwealth and Development Office (FCDO)
- d. thought leadership within the international trade community on key regulatory issues for the maritime sector, for example promoting the highest standards and compliance with IMO regulations





Shipping containers

Conclusion

The maritime domain is vital to UK prosperity and security. The Board of Trade supports government efforts through the NSbS Refresh to create a globally successful, innovative and sustainable UK shipbuilding enterprise and recognises that becoming the confident global trading nation set out in the Export Strategy *Made in the UK, Sold to the World* means reinforcing the UK position as a leading maritime nation.

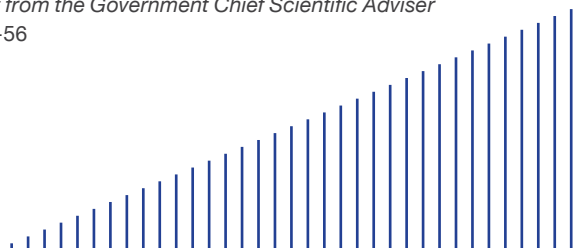
Rapid restructuring of the global maritime sector means there is a once-in-a-generation opportunity to strengthen the UK's market share and global position. DIT has taken some important steps to strengthen its maritime work but there is much more to be done. While DIT interventions should rightly be focused internationally, it is important that opportunities fought for and won overseas remain aligned with domestic policy objectives, including those set out in the publication *Build Back Better: our plan for growth*.⁶⁷ Particular attention should be paid to ensuring a clear link between growth in the maritime sector and growth in coastal communities.

The opportunities and approaches outlined in this paper should help DIT strengthen its approach and make the most of the new MCCO but it is important to remember that the maritime world is complex and, at times, opaque. At the core of all DIT interventions in the sector should be a strong focus on understanding and serving customers, whether businesses or foreign governments, more fully. This will require better intelligence, patient relationship building, a keener understanding of the UK's competitors and the ability, as "Team UK", to develop creative joined-up solutions.

Both the NSbS Refresh and the MCCO bring together civil and naval maritime work. This is an important development as the needs of global customers are becoming more integrated, requiring solutions that span both the civilian and security fields. Equally, overlaps between military and civilian technologies represent opportunities to establish first mover advantage or improve price competitiveness. The Board of Trade suggests detailed examination, incorporating views from industry and academia, of connections between civil and naval maritime domains as a potential source of UK competitive advantage.

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