INDIA'S MARITIME FUTURE RESEARCH REPORT

FINANCE AND INVESTMENT CELL
SHRI RAM COLLEGE OF COMMERCE

TABLE OF CONTENTS

01	Introduction	01
02	Maritime Value Chain and Chokepoints	08
03	Case Studies of Weaponisation of Trade	25
04	Policy Frameworks	32
05	Company Case Studies	35
06	DCF Analysis and Interpretation	38
07	References	40

Introduction

Timeline of Maritime Trade

- **1488** - Bartolomeu Dias reaches the Cape of Good Hope, opening up the sea route between Asia and Europe.
- **1498 -** Vasco Da Gama rounded the Cape of Good Hope and arrived in Calicut, opening up a direct maritime trade route to the Indian Ocean. The Portuguese established the Estado da India, a commercial colony that monopolised the spice trade, disrupting existing Arab-Indian trading networks.
- **1500s** - Trade was becoming larger in scale, which led to the introduction of "Full-rigged Ships". The Indian Ocean was dominated by Arab, Chinese and Indian Merchants. This period saw the emergence of armed merchant vessels and increased control of the trade routes by European countries.
- **1600-1700s** - Global trade was dominated by Indian textiles, and European nations established trade posts on the Indian Coasts like Madras, Surat, Calcutta, etc. Subsequent to the death of Aurangzeb, European powers transitioned to military control.
- **1807** - The first commercially successful steamboat, the North River Steamboat, is launched. The technology spread from America and Britain to other maritime nations and resulted in reduced dependence of maritime trade on wind patterns.
- **1850-60s** - Adoption of iron-hulled, steam-propelled vessels as opposed to wooden ships considerably increased due to fuel-efficient triple-expansion engines.
- **1869** - The opening of the Suez Canal shortens the Europe to Asia route from about 3-4 months around the Cape of Good Hope to about 3-4 weeks. This made the Red Sea route of paramount importance to world commerce. Britain secured control of the canal to accelerate its imperial trade network.
- **1914-39** - The First World War disrupts global trade and results in heavy losses of fleet and cargo. This motivated attempts to prepare legal frameworks and international maritime conventions by the League of Nations post the war. Following the Great Depression, protectionism pursued by nations to safeguard their domestic industries resulted in a decline in global shipping. During this period, there was a significant technological advancement with the development of radio communication and radar. USS Leary (DD-158) became the first vessel to be equipped with Radar in 1937.
- **1944** - The US Dollar becomes the global reserve currency at the Bretton Woods Conference. Dollar Dominance ensues in maritime trade, and American financial institutions gain an upper hand in trade financing.
- **1948** - The General Agreement on Tariffs and Trade(GATT) is established, marking the beginning of the reduction in trade barriers that led to globalisation. The beginning of the Cold War created two separate trading spheres. The Convention that establishes the International Maritime Organisation was adopted. Newly independent nations struggle with shipping capacities and are compelled to rely on other nations' ships.
- **1956** - The SS Ideal X, a converted World War II oil tanker, was the first commercially successful container ship. Malcolm McLean's Pan Atlantic Steamship Company conducted the first usage of the Ideal X in a transit from Newark to Houston. This simple innovation would transform Global Trade by minimizing cargo handling costs and port turnaround time.
- **1958** - International Maritime Organization becomes operational as a UN specialized agency with its headquarters in London. Early on the agency focused on preparing regulatory frameworks for maritime safety and the later the focus was shifted to environmental preservation and security. However the power to legislate was concentrated in the hands of traditional

- maritime powers like the UK, US, Greece, Japan,etc. This led to the negligence of the interests of smaller maritime powers.
- 1960s - The practice of Flags of Convenience(FOC) increased, whereby ship owners would register their ships in the register of a nation that has less stringent labor laws and safety standards or for the purpose of avoiding high tax rates. Nations like Panama and Liberia were targeted and by the end of the decade Liberia had the largest shipping registry by tonnage, despite having a minimal maritime industry. During this time various nations attempt to build their independent shipping capacities. India established the Shipping Corporation of India after merging state corporations. China founded COSCO in 1961 as a shipping giant. However, various nations continue to rely on European, American and Japanese Shipping lines for carrying out their trade.
- 1966-69 - Formation of the P&I(Protection and Indemnity) Club System whereby Mutual Maritime insurance clubs are formed primarily in London and Europe to protect cargo and shipowners against open ended risks that marine insurers were reluctant to insure. This eventually led to the development of an insurance monopoly as it covered nearly 90% in Global tonnage of Maritime Trade.
- 1970s - The oil crises of 1973 and 1979 led to a boom in the tanker market as a result of the spike in oil prices. Towards the end of the decade, overcapacity in the market leads to fall in the freight rates. Development of larger vessels like Very Large Crude Carriers (VLCCs) and Ultra Large Crude Carriers (ULCCs) also takes place to leverage economies of scale.
- 1980s - Introduction of mega container ships takes place. Earlier container ships had 500-800 TEUs, while ships around this time have capacities upwards of 3000 TEUs. This decade also sees the
- opening of China to international trade following reforms by Deng Xiaoping. European and Asian Shipping lines form alliances like the Far East Freight Conference(FEFC) to protect against overcapacity pressures.
- 1990s - Global Maritime Trade reaches the size of around 4 billion tonnes annually with continued steady growth. However the growth was unevenly distributed, with Developed nations dominating containerized trades while developing nations compose a small portion of the total global volume of TEU. The Maritime system is firmly established within Western powers like London and New York- financial, insurance and legal dominance that persisted into the 21st Century.

India's Maritime History & Evolution

1. Ancient Period (4000 BCE to 1500 CE)

- India's geographical position led it to be a nation having an important position in the global maritime landscape. It has a 7,517 km coastline as well as a peninsular shape. Even the ocean surrounding it is uniquely named after it (Indian Ocean). In fact, it is the only country that has an ocean named after it.
- Lothal was discovered in 1954 AD. It was one of the most prominent cities of the ancient Indus Valley civilization. It featured the earliest known dock in the world (2400 BCE). The dock was built of kiln-burnt bricks, indicating that the Lothal engineers studied tidal movements deeply, as well as their effects on brick structures. A point to be noted is that this dock's technology was reportedly similar to the Princess Dock in Bombay, which was completed in 1735 AD.
- The earliest recorded evidence of maritime trade between India and West Asia was around 3000 BCE, which was during the Indus Civilisation. The development of the Harappan sites, such as Lothal and Dholavira, shows how

- India was a prominent nation in the global maritime trade landscape in those times. Exports included timber, ivory, carnelian and other semiprecious stones. Some researchers suggest that even gold was majorly exported.
- There are references in the Rig Veda as well, proving how India used to be a prominent trading nation in ancient times. It contains some passages alluding to commercial sea voyages, mentioning the 'Samudra' (ocean) and referencing the 'Sataritara' (a galley with 100 oars).
- During the Mauryan age, shipbuilding was heavily emphasised and developed. The renowned Mauryan emperor Chandragupta had an actual Board of Admiralty with a Superintendent of Ships. In his book Arthasastra, the famous economist Kautilya even outlined the functions of the Port Commissioner.
- Indians built a fleet of up to 2,000 vessels for Alexander's voyage to the Persian Gulf.
- Indian ships were noted for being built of teakwood, which resists the effect of salty seawater, contributing to their durability.
- As per the Yuktikalpataru (11th century), ship builders were not to use iron in sea-faring ships, as the magnetic iron in seawater could be highly dangerous.
- The use of a magnetic compass, known as Matsya Yantra, for determining direction was known to Hindus.
- The Roman era began when the discovery of seasonal southwestern monsoons by Hippalus (around 100 BCE) enabled deep-sea voyaging and regular trade with India, providing a solution to the long and often pirate-attacked coastwise route.
- Indian exports included spices, fine pearls, muslin, silk cloth, ivory, tortoise shell and semiprecious stones. Imports included gold and silver coins, copper, tin, lead and wine.
- The volume of trade led the Greek writer Pliny to remark that India drained the Roman Empire of 50 million sesterces every year, to satisfy Roman demand for Indian goods. Roman coins (used as bullion) were found abundantly across the Indian peninsula.
- Ports like Muziris (Malabar coast) were among the busiest, often crowded with ships. Tamil literature testifies to the extensive overseas trade of this era.
- Along with trade, Indian cultural influences, including religion (Buddhism and Hinduism), art and literature, spread across Southeast Asia, establishing India as a "centre of a civilisation". The culture even influenced countries like Java, Sumatra, Cambodia, Thailand and China.
- This expansion was primarily achieved through peaceful trading and religious teaching, and not military expeditions, making the cultural impact much more sustainable and durable.
- The ships were very large. Some Buddhist Jataka stories remark that the vessels were capable of carrying up to 700 people.
- There were several emerging maritime naval powers, including the Cholas. Their fleets conquered islands and challenged the might of the Sri Vijaya Empire (based in Sumatra), which dominated the Malacca Straits from the 5th to 10th centuries.

2. Medieval Era (1500 - 1800 CE)

- The majority of India's maritime trade involved bulk trading in cheap goods. Indian exports consisted of coarse textiles, grains (rice, pulses, wheat, etc.) and oil. Imports were mainly bullion (precious metals), horses and spices.
- The focus of Indian trade shifted significantly during this era.
- The decline of voyages to Malacca was largely due to the Portuguese in 1511.
- The Red Sea emerged as India's principal market by the end of the 16th century, primarily due to the importance

- of the Hajj market and the development of the Yemeni coffee trade.
- The 17th century was the time when India's textile trade to Western Asia was at its peak.
- Indian shipping remained vital despite European interference, primarily due to low freight rates and the preference of Indian merchants for their own community's ships. However, investment in shipping was not popular among Indian merchants as it led to their capital being tied up for very low returns (which were never more than 30% in a good season, compared to at least 20% more profit in the trade itself).
- Then came the period of decline. Although European trade (Portuguese, English, Dutch) was initially integrated into the existing structure, the establishment of empires brought major alterations. The Dutch East India Company established a near-effective monopoly of the spice trade by the mid-17th century, keenly impacting Indian merchants.
- The downfall of Gujarati shipping began during the 18th century, before the political breakdown, hastened by political insecurity and glutted markets. The total turnover of the port of Surat fell from approximately Rs. 16 million annually to Rs. 5 million. The fleet based at Surat declined from 112 vessels in 1701 to about 20 in 1750.
- Calcutta and Madras began to eclipse older ports like Masulipatam before the end of this period.

3. Post-Independence and Modern Period

- Colonial impact could be largely seen in India's maritime trade. Indian ship-building excellence was noted by foreigners, such as John Grose in the mid-18th century, who stated that at Surat, the Indians built "incomparably the best ships in the world for duration," some lasting "for a century".
- Indian-built teak ships (800 to 1000 tons displacement) were deemed superior to British counterparts, lasting fifty years and upwards, compared to twelve years for British naval ships.
- The deliberate destruction of Indian shipping was executed through British economic policy, including imposing double import duty on goods carried by non-British-built ships (starting in 1811).
- The consequence was a dramatic decline: 34,286 Indian ships entered and cleared ports in 1857 (1,219,958 tons), but this plummeted to only 1,676 ships (109,813 tons) by 1900. By 1947, Indian tonnage was merely 192,000 tons.
- Coming to the modern re-emergence, the Indian Ocean Region (IOR) is critical for India's prosperity. Over 80% of India's trade by volume and 95% by value passes through these waters.
- India's maritime diplomacy is central to its foreign policy. Key guiding policies include:
- Indian Maritime Doctrine (2004): Emphasises naval modernisation, regional cooperation, and the protection of India's maritime interests, including shipping, trade and energy security.
- SAGAR (Security and Growth for All in the Region, 2015): India's doctrine of maritime cooperation, focusing on security, economic connectivity, and environmental sustainability with its neighbours.
- Maritime India Vision 2030: An ambitious initiative aiming to transform India's maritime sector with over 150 initiatives across ports, shipping, and waterways, emphasising sustainability and technological innovation.

Current Status (data from 2003-2006):

- In 2003, Major Ports alone handled 34,45,47,000 M.T of cargo.
- As of December 31, 2006, India had 774 ships of 8.4 million Gross Tonnage (GT) or 14.2 million Deadweight Tonnage (DWT).
- India's share of the country's overseas sea-borne trade declined from 40% in the late 1980s to only 13.7% in 2004-05.

4. Impact of COVID-19 (2019–2021)

- The COVID-19 pandemic caused significant negative impacts on seaport transportation and the maritime supply chain in India, characterised by negative growth in cargo traffic and decreased vessel traffic compared to the pre-crisis period.
-
- Comparison of Performance Data (FY 2021 vs FY 2020):
-
- Overall Cargo Traffic: Total cargo volume handled at Indian Major Ports declined by 4.58% (from 704.927 Million Tonnes to 672.606 Million Tonnes).
- Vessel Traffic: The total number of vessel calls for all major seaports declined by 3,217.

Region	Change in Cargo Traffic Volume	Vessel Call Performance Change
All Major Seaports	-4.59% (672,606 vs 704,927 kilo tonnes)	-3,217
East Coast	-4.67%	-1,568
West Coast	-13.72%	-1,649

Positive Growth Exceptions: Only two major ports registered positive cargo growth during the study period: Mormugao Port Trust (37.06%) and Paradip Port Trust (1.65%).

Cargo Segment	Change in Kilo Tonnes	Percentage Variation
Iron Ore	+16,017	29.11%
Fertilizers	+3,776	23.71%
Other Cargo	+1,832	2.42%
Liquid Cargo	-31,738	-11.9%
Coal	-17,277	-11.5%
Containers	-374	-3.75%

- 44.83% of experts reported that COVID-19 had significantly affected maritime and port logistics activities in India. The survey suggested a lack of preparedness and difficulties in adaptation among maritime organisations.
- 98% of respondent experts agreed or fully agreed that digitisation & smart technologies (big data, AI, IoT and robotics) would be the solution for the future of maritime supply chain and port logistics businesses in India.
- 98% of experts reported a need for the development of a recovery strategy. The highest percentage of experts (36.78%) believed there was a need for government support for 6-12 months for maritime chain organisations' business recovery.

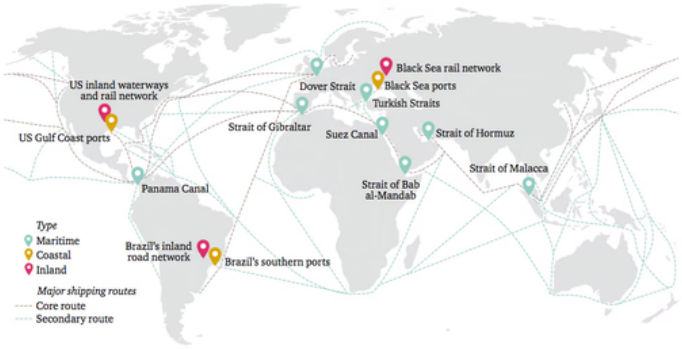
Geographical Chokepoints & Trade Routes

In the international shipping network, there are unique choke points formed in natural and geographical conditions or historical context. Choke Points are located on key international transport routes to maximise transportation efficiency, but at the same time, they can be

interpreted as "bottlenecks" or "vital arteries" that are vulnerable to network disruptions or interruptions due to various factors. There isn't a particular standard, but Primary Chokepoints are classified as geopolitically more important and relatively more vulnerable locations among other chokepoints within international ocean networks. In addition, Key Chokepoints are referred to as particularly high-sensitivity points among others.

Recently, 8 major chokepoints divided by UN Trade and Development are: 2 largest canals (Panama Canal and Suez Canal), 5 straits (Bab el-Mandeb Strait, Strait of Hormuz, Turkish Strait, Strait of Gibraltar, and Strait of Malacca) and Cape of Good Hope at the southernmost part of South Africa.

Figure 1: Maritime, coastal and inland chokepoints and major shipping routes



Maritime chokepoints are critical points along transport routes. They facilitate the passage of substantial trade volumes and connect the world. Due to limited alternative routes, disruptions at chokepoints have negative impacts on supply chains and lead to systemic consequences affecting food security, energy supply and the global economy

Blockage of any one of the seven key marine chokepoints will re-route global shipping.

Numerous countries depend on three other chokepoints for access to shipping.

Closure of key chokepoints will cause regional shipping delays and port backlogs.

There are potentially an infinite number of maritime shipping routes that can be used for maritime shipping, but the configuration of the global maritime shipping system is relatively simple. The central axis is a circum-equatorial corridor linking North America, Europe, and Pacific Asia through the Suez Canal, the Strait of Malacca, and the Panama Canal. These routes support the bulk of the traffic, but numerous other routes exist (namely for coastal shipping), depending on the origin and destination of the maritime shipment. Transatlantic and transpacific traffic concerns a wide variety of ports, so there are numerous routes, most of them having a path along the great circle. Trans-Indian Ocean traffic is predominantly intermediary between Pacific Asia and Europe, implying a series of clearly defined routes between the Strait of Malacca and Bab el-Mandeb

Maritime routes are shaped by obligatory points of passage, which are strategic locations that act as chokepoints. Physical constraints (coasts, winds, marine currents, depth, reefs, ice) and political borders also play an essential role in shaping maritime routes. As a result, maritime routes try to follow the great circle distance. Core routes are those supporting the most important commercial shipping flows servicing major markets, and secondary routes are mostly connectors between smaller markets.

Foreign control of Shipping and Fleet-

China, Greece, the United States, the UAE, and Denmark are among the most influential maritime powers. Their dominance is shaped by state-backed investments, private shipping giants, and control over critical logistics hubs.

Four factors of measuring control:

1. Fleet ownership
2. Port Infrastructure
3. Shipbuilding Capacity
4. Influence over trade routes

Fleet Ownership:

• Greece: 17.6% of global fleet tonnage (largest worldwide).
• China: 12.2% (second-largest, but rising due to domestic financing).
• Japan: 10.9%, with strength in bulk carriers.

Port Infrastructure:
• Shanghai: 47M TEU (busiest port worldwide).
• Singapore: 39M TEU (key global hub).
• Jebel Ali (UAE): Largest transhipment hub in the Middle East

Shipbuilding Capacity

• China: 47.6% of global shipbuilding output (largest producer).
• South Korea: 28.5% (dominates LNG carriers).
• Japan: 18.2%, specializing in high-tech vessels.

Trade Route Influence:
China: Invested in 90+ ports globally (Belt and Road Initiative).
• U.S.: Controls key ports but lacks shipbuilding influence.
• EU: Maintains influence through shipping regulations.

Classification of Countries-

China

- Fleet Ownership: China owns 12.2% of the world's shipping tonnage. It also operates 6 of the 10 busiest container ports, including Shanghai, which handled 47 million TEU in 2023.
- Shipbuilding Power: China produces 47.6% of global commercial vessels, making it the largest shipbuilder. Through its Belt and Road Initiative, China has also invested in over 90 ports worldwide, increasing its geopolitical influence.

Greece

- Fleet Ownership: Greece controls 17.6% of global merchant fleet tonnage, the highest of any nation. Greek companies specialise in bulk carriers and oil tankers, crucial for transporting raw materials.
- Regulatory Strategy: Many Greek-owned vessels operate under "flags of convenience", registering in countries like Liberia and Panama for tax and regulatory advantages.

United States

- Fleet Ownership: The U.S. controls only 0.2% of the world's commercial fleet. However, its ports remain critical, with Los Angeles and New York ranking among the busiest cargo hubs.
- Regulatory Impact: The Jones Act restricts domestic shipping to U.S.-built, owned, and operated vessels, limiting foreign competition but raising costs.

UAE

- Port Dominance: Dubai-based DP World operates over 80 ports worldwide, making the UAE a major logistics hub. Jebel Ali is the largest transhipment port in the Middle East, connecting trade between Europe, Asia, and Africa.

Denmark

- Global Shipping Influence: Denmark has a small national fleet but wields significant power through A.P. Moller-Maersk, the world's second-largest container shipping company.
- Industry Leadership: Maersk is at the forefront of decarbonization, investing in green fuel technologies for sustainable shipping.

BDI: The Baltic Dry Index is reported daily by the Baltic Exchange in London. The index provides a benchmark for the price of moving the major raw materials by sea. The index is a composite of three sub-indices that measure different sizes of dry bulk carriers: Capesize, which typically transport iron ore or coal cargoes of about 150,000 tonnes; Panamax, which usually carry coal or grain cargoes of about 60,000 to 70,000 tonnes; and Supramax, with a carrying capacity between 48,000 and 60,000 tonnes. The Baltic Dry Index takes into account 23 different shipping routes carrying coal, iron ore, grains and many other commodities.

China Containerised Freight Index (CCFI): This reflects weekly changes in shipping rates from China and Hong Kong to major global ports.

Chinese control:
Chinese shipyards are producing over 1,000 ocean-going vessels a year; the U.S. builds fewer than 10. South Korea and Japan, the next leading markets, are far behind China's scale.
Once christened, those ships need to be filled. China also holds a near-monopoly in shipping container production, accounting for 95% of global output. China alone owns almost one-fifth of the global commercial ship fleet and almost three-quarters of the world's shipbuilding orders. Over 20% of all U.S. trade imported into America last year arrived on Chinese-built vessels.
Like other industrial sectors, state backing has supported a rapid expansion of China's shipbuilding capability. But it has also created excess capacity, stifling global prices and competition.
Beijing's state-owned enterprises have also gained a considerable amount of influence in managing trade corridors across the globe. According to CFR Research, 129 ports outside of the mainland have Chinese investment. China owns a majority share in 17 projects. Over one-fourth of global container trade in 2023 passed through terminals where Chinese and Hong Kong–based companies held direct stakes.
The U.S. lags China in port control as well as shipping infrastructure capacity. The U.S. does not own or manage any commercial ports outside its borders. None of the world's top ten shipping companies or seaport operators are from the United States. All of this highlights the potential leverage China holds over international maritime routes.

Maritime Value Chain and Chokepoints

A value chain is a step-by-step business process that moves a product or service from idea to reality. Every step along the chain should add value.

Interdependent value chains in the maritime ecosystem

The marine fuel value chain
This chain focuses on the journey of fuel from its source to being ready for use.

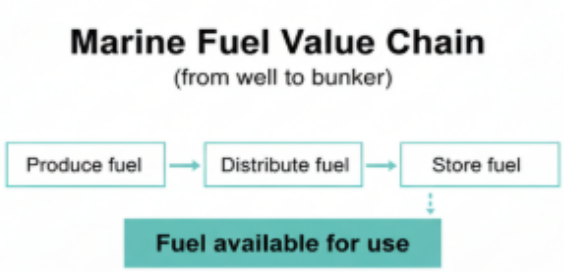


Figure 2 displays a simple flowchart for the Marine Fuel Value Chain, explaining the process of getting fuel from its origin to a ship.
It shows a three-step process:
Produce fuel: This is the first step, which involves making or refining the fuel.
Deliver fuel: Fuel is moved once it's produced to where it needs to be used (a port, say).
Store fuel: The fuel is next stored, often in huge tanks at a port — waiting to be used.

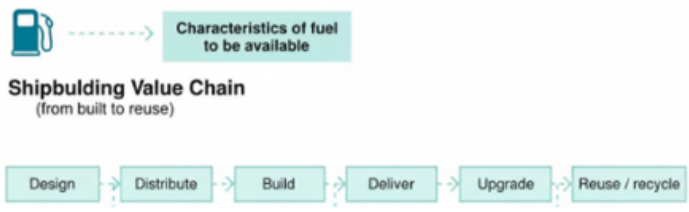
After being stored, the fuel becomes "Fuel available for use" and can be loaded on board a ship.

The vital suppliers of these fuels are production and processing technology providers, energy companies using these technologies, and the carriers that transport these fuels to where they are needed.
The current marine fuel market can be considered global in nature.

According to practitioners around 10 percent of the end use price for today's marine fuels stems from distribution and storage.

Its total annual expenditure is approximately $250 billion today.
This includes:
· The current price of ship fuel.
· The total amount of fuel ships use.
· A possible new $100-per-ton tax on the CO2 pollution from that fuel.

The Shipbuilding value chain
The shipbuilding value chain consists of ship design, procurement (e.g., steel), production (component production, assembly, and integration), and post-production (maintenance, repair, and reuse and recycling).



This Figure shows the entire lifecycle of a ship.
1. The Ship's Lifecycle
This shows the primary stages a ship goes through:

1. Design: The initial phase where the ship is planned, engineered, and designed based on its intended purpose.
2. Distribute: This likely refers to the distribution of parts, materials, and components to the shipyard where the ship will be built.
3. Build: The actual construction phase at the shipyard.
4. Deliver: The completed ship is handed over to the owner or operator.
5. Upgrade: During its service life, the ship is taken out of service for maintenance, repairs, or retrofitting with new technology.
6. Reuse / recycle: At the end of its useful life (often 20-30 years), the ship is dismantled, and its materials (like steel) are recycled or repurposed.

The answers to three questions determined the shipbuilding process:
1) How much capacity of cargo / passengers is needed (i.e., size of ship)?
2) How fast should the ship travel (i.e., size of engine)?
3) How energy efficient should the ship be (e.g. hydrodynamically efficient hull and propulsion designs, or on-board wind power).
The shipbuilding and marine fuel value chains are interdependent.
What ships and engines will be built and sustainably used largely depends on the assessment of what fuels will or can be available and their cost.
The shipbuilding value chain can be valued at $115 billion, based on the contract value for new orders placed in 2021.

The maritime operational value chain.

The maritime operational VC includes fueling, provisioning, and cargo and passenger handling. Faster turnarounds raise capital productivity. Bunker locations, fuel prices, and weather conditions impact the routing, and, hence, operational efficiency. It is widely understood that there is plenty of room for efficiency improvement along this VC.

The above figure illustrates the Maritime Operational Value Chain, which focuses on the day-to-day, in-use cycle of a ship and its fuel.
This value chain is a continuous loop:
1.Port visit (incl. poss fuelling): The ship is at a port. Here, it conducts its primary business (like loading or unloading cargo) and has the opportunity to refuel ("possible fuelling").
2.Sea voyage (poss. fuelling on the way): The ship leaves the port and travels to its next destination. The diagram notes that it's also possible to be refueled during the voyage (e.g., by a bunker barge at sea).
3.Port visit (incl. poss fuelling): The ship arrives at the next port, where the cycle begins again.

Estimating an annual commercial turnover of the operational value chain is difficult. The asset value of the world fleet, according to UNCTAD's Review of Maritime Transport 2022 (forthcoming) , stands at $1.4 trillion. Hence, the most value lies in the operational value chain.

Primary Activities

Primary Activities are those directly involved in the physical creation, sale, maintenance, and support of the product or service. In the maritime context, these activities represent the operational lifecycle of the cargo, extending from the initial receipt of the shipment to its final delivery and post-voyage service.

2.1 Inbound Logistics.

This phase is the foundational logistical layer upon which the entire voyage is built.
Empty Container Repositioning.: Empty containers can be treated as "raw materials" to the maritime industry.

- **Imbalance Management:** The logistical imperative to move empty assets from surplus areas (e.g., North America, Europe) to deficit areas (e.g., Asia) constitutes a significant cost center. Efficient inbound logistics in this regard focuses on minimising the "non-revenue" movements of these boxes.

Carriers utilise complex forecasting models to predict regional equipment deficits weeks in advance, optimising the flow of empties to depots closest to export hubs.

- **Depot Operations:** The maintenance, storage, and release of containers at inland depots or port terminals represent the physical initiation of the logistics chain. The condition of the container—whether it is food-grade, watertight, or suitable for flexitanks—is verified here, ensuring the "input" quality for the subsequent transport operation.

Terminal Gate Operations and Data Ingestion.
This is the point of transfer where custody of the goods shifts from the shipper or drayage provider to the maritime carrier.

- **Gate Processing and Efficiency:** The physical receipt of full export containers involves rigorous checking at the terminal gate. Operational efficiency is measured in truck turnaround times and the fluidity of gate transactions. Delays here ripple downstream, affecting vessel stowage and departure schedules.
- **Yard Planning as Inbound Storage**: Once received, containers are stacked in the terminal yard. This stacking is not random; it is a strategic "inbound storage" function derived from the vessel's stowage plan. Containers must be segregated by weight, port of discharge, and hazardous classification.
- **Digital Inbound Streams**: In the modern value chain, data is as critical as physical cargo. The receipt of Shipping Instructions (SI) and Verified Gross Mass (VGM) data constitutes the digital "raw material" necessary to plan the voyage. Without accurate data inputs, the physical operation cannot legally or safely proceed, highlighting the critical role of information flow in inbound logistics.

2.2 Operations.

Operations represent the heart of the maritime value chain—the transformation of inputs (cargo at origin) into outputs (cargo at destination) through the application of massive capital assets and specialised labor.

This category encompasses the most complex and capital-intensive activities of the shipping firm, including the critical function of **Route & Network Planning**.

Route and Network Planning,

the actual construction, optimisation, and maintenance of the network is the core operational activity of a liner shipping company. It is the equivalent of "production scheduling" in a factory.

The strategic importance of network planning cannot be overstated. It serves as the determinant of the carrier's cost structure and service viability. A poorly designed network results in excessive bunker consumption, high port dues, inefficient asset utilisation, and ultimately, customer attrition.

Table 1: The Operational Dimensions of Route & Network Planning,

Planning Dimension	Operational Function	Value Creation Mechanism
Network Design & Topology	Determining the sequence of port calls (e.g., Pendulum vs. Butterfly loops) and hub selection.	Optimizes asset utilization by minimizing ballast legs and maximizing sea-leg revenue generation.
Fleet Assignment & Deployment	Allocating specific vessel classes (e.g., 24,000 TEU ULCVs vs. 3,000 TEU Feeders) to specific trade loops.	Matches capacity to demand, preventing "air shipping" (under-utilization) or "rolled cargo" (revenue loss).
Schedule Construction	Creating the precise timetable for arrivals and departures, factoring in buffer times for delays.	Establishes the "product" (reliability) sold to customers; directly impacts fuel consumption profiles.
Transshipment Strategy	Identifying and utilizing hub ports (e.g., Singapore, Tanjung Pelepas) for relaying cargo.	Enables hub-and-spoke efficiencies, allowing carriers to serve peripheral markets without direct deep-sea calls.
Bunker & Speed Optimization	Determining the "Eco-Speed" or "Slow Steaming" profile for each route leg.	Balances the largest variable cost (fuel) against transit time competitiveness and inventory costs for shippers.

Strategic Insight - The Conflict of Planning: Network planning is often the site of internal organisational tension. Commercial teams (marketing & sales) demand direct calls to more ports to satisfy specific local customers, while operational teams advocate for streamlined, hub-centric and networks to maximise reliability and reduce costs. The resolution of this conflict through data-driven network optimisation is a primary source of competitive advantage. Advanced algorithms and Operations Research (OR) methodologies are increasingly employed to solve these complex, multi-variable optimisation problems, balancing commercial reach with operational austerity.

Voyage Execution:

Once the network is planned, the execution of the voyage represents the actual "manufacturing" of the transport service.

- Navigation and Weather Routing: Modern voyage execution involves real-time interaction between the vessel master and shore-based fleet operations centers. Technologies allow for dynamic routing to avoid adverse weather, currents, or high-risk zones (e.g., piracy or conflict zones like the Red Sea). This minimizes fuel burn, prevents cargo damage, and ensures schedule integrity.
- Bunker Consumption Management: With fuel costs representing 30-50% of operating expenses, precise management of engine load and hull performance is critical. Operational measures outlined in the Ship Energy Efficiency Management Plan (SEEMP) are executed here to reduce CO2 emissions and improve fuel efficiency.
- Cargo Care and Monitoring: For specialized cargo, particularly refrigerated goods (reefers), operations include the continuous monitoring of temperature, humidity, and atmosphere. Failures in this operational step result in direct value destruction through cargo spoilage claims.

Port and Terminal Operations (Seaside).
The interface between the vessel and the port is a critical operational node.

- Stowage Planning: This is the intricate operational puzzle of placing containers on a ship. Planners must account for vessel stability, hydrostatic forces, hazardous material segregation rules, and the sequence of discharge at subsequent ports. An inefficient stowage plan can lead to "restows" (moving a container unnecessarily), which incurs significant stevedoring costs and time penalties.
- Stevedoring: The physical act of loading and discharging the vessel. While often outsourced to terminal operators, the management of this vendor relationship and the monitoring of crane productivity (moves per hour) are central to the carrier's operations.

2.3 Outbound Logistics.
Outbound logistics in maritime refers to the activities required to distribute the service output to the buyer.
Discharge and Transhipment Management.
The immediate outbound activity is the discharge of cargo at the destination port. For transhipment cargo, this involves the logistical coordination of moving containers from the mother vessel to a holding stack and then to a feeder vessel. This "relay" function is critical for the integrity of the global network.

Intermodal Transport and Vertical Integration:
Leading shipping lines are increasingly integrating vertically to capture value in the landside logistics chain. Outbound logistics now encompasses:

- Drayage and Trucking: The coordination of short-haul trucking to move containers from the port to local distribution centres or rail ramps.
- Rail and Barge Connectivity: Managing the flow of cargo from coastal gateways to inland dry ports (e.g., from Rotterdam to the German Ruhr valley, or from Los Angeles to Chicago). This requires extensive coordination with rail providers and barge operators.
- Deconsolidation and Last Mile: For Less-than-Container Load (LCL) shipments, the value chain includes the breakdown of consolidated containers at Container Freight Stations (CFS) and the subsequent delivery of individual pallets to consignees. This activity captures higher margins than pure ocean transport.

2.4 Marketing and Sales.
This activity involves the mechanisms by which buyers are informed about the service, induced to purchase it, and the transaction is priced.
Yield Management and Dynamic Pricing.
Maritime pricing is notoriously complex, characterised by extreme volatility. Marketing & Sales activities focus on maximising yield per TEU (Twenty-Foot Equivalent Unit) through sophisticated revenue management strategies.

- Segmentation: Carriers differentiate between Beneficial Cargo Owners (BCOs)—large retailers like Walmart or IKEA who contract directly for long-term volume—and Freight Forwarders (NVOCCs) who aggregate volume and often play the spot market. Sales strategies and service level agreements (SLAs) differ vastly for these two segments.
- Pricing Algorithms: Similar to the airline industry, liners utilize dynamic pricing models that adjust rates based on demand forecasts, booking curves, and remaining capacity. This allows them to capitalize on peak seasons while securing baseload volume during slack periods.
- Surcharge Mechanisms: A key component of pricing strategy is the application of surcharges (Bunker Adjustment Factor - BAF, Currency Adjustment Factor - CAF, Peak Season Surcharge - PSS) to pass through volatile input costs to the customer.

Digitalisation of the Sales Channel:
The industry is undergoing a digital revolution in sales. Traditional manual negotiations via email and phone are being replaced by instant booking platforms (e.g., Maersk Spot and Hapag-Lloyd's Quick Quotes).

These platforms provide instant pricing and booking confirmation, reducing transaction costs and increasing the "stickiness" of the service. This shift also allows carriers to enforce penalties for "no-shows", addressing a historic inefficiency where customers would book slots but fail to deliver cargo.

Service:
Service activities maintain and enhance the value of the product after the sale.
Visibility and Real-Time Tracking.
Providing real-time data on cargo location is no longer a value-add; it is a baseline requirement.

- Smart Containers: The deployment of containers equipped with IoT sensors provides data not just on location, but on shock, humidity, temperature, and door-opening events. This data stream is a high-value service product, particularly for high-value or sensitive goods (pharma, electronics).
- Exception Management: The true test of service is not when things go right, but when they go wrong. Proactive notification of delays, rollovers, or customs holds constitutes a critical service activity that builds trust.

Claims and Documentation Management:

- Documentation: The accurate and timely issuance of the Bill of Lading (B/L), arrival notices, and customs filings is essential. Errors here can result in massive fines and cargo stagnation. Digitalising this process through electronic Bills of Lading (eBL) is a major service innovation, reducing friction and fraud.
- Claims Processing: Efficiently handling claims for lost or damaged cargo is vital for maintaining commercial relationships. A streamlined claims process can turn a negative operational event into a positive service recovery.

Support Activities:

- Support activities provide the inputs, technology, human resources, and infrastructure that allow the primary activities to take place.
- In the highly capital-intensive maritime industry, these activities are often the largest drivers of fixed costs and long-term strategic capability.

Technical Management (Maintenance & Engineering):

- This is paramount. Unlike a factory, the primary asset (the vessel) is a complex, self-contained, mobile unit operating 24/7 in a harsh environment.
- This function ensures the vessel is seaworthy and operational. It involves managing planned maintenance (like dry-docking), emergency repairs, spare parts logistics (which is complex when the "address" is in the middle of an ocean), and ensuring compliance with Classification Societies (like DNV, Lloyd's Register) which is essential for insurance and legal operation.

Safety, Security & Environmental Management:

- In most industries, this is important. In shipping, it is a non-negotiable license to operate.
- This function manages compliance with a vast web of international regulations (e.g., SOLAS for safety, MARPOL for pollution, ISPS Code for security). A single failure can result in massive fines, port state control detentions, environmental disasters, and loss of life. It also includes managing security risks like piracy.

Crew Management (Specialized Human Resources):

- This is far more complex than typical HR. "Crewing" is a highly specialized function.
- It involves sourcing, vetting, training, and deploying seafarers who have specific international certifications (STCW). It manages complex logistics (getting crews to and from ships worldwide), payroll across different currencies, and compliance with maritime labor laws (MLC). A competent crew is the first line of defense for safety and asset protection.

Risk Management & Insurance (Legal & Compliance):
This is the financial and legal shield for high-risk, high-value assets.

- This function manages the company's exposure to volatile freight rates, geopolitical risks (e.g., war risk zones), and accidents. A key part of this is managing specialized maritime insurance, particularly Protection & Indemnity (P&I) clubs, which cover third-party liabilities like cargo damage, pollution, and collisions.

Bunker (Fuel) Management (Specialized Procurement):
This is a subset of Procurement, but it's so significant it stands on its own.

- Bunker fuel is the single largest operating cost for most vessels (often 50-60% of voyage costs). This function involves analyzing global fuel prices, hedging against price swings, selecting quality suppliers, and ensuring compliance with new environmental rules (like low-sulfur fuel regulations). A 1% saving here can have a bigger bottom-line impact than in any other support area.

Key stakeholders in the value chain:

- Financial: This category consists of banks, investors, insurance firms, and other financial institutions. They are responsible for providing the maritime industry with vital capital, risk management (insurance), and other financial services.
- Cargo: This group includes the owners of the goods, shippers, manufacturers, retailers, and freight forwarders. They are the parties who own the freight being moved by sea and initiate its transport, thus representing the demand side of the maritime chain.
- Ship: This category is composed of shipyards (which design and build vessels), vessel owners (who possess the ships as assets), and ship management companies (which oversee technical operations and crew staffing).
- Port: This group includes port authorities, which oversee governance and manage infrastructure; terminal operators, who direct the handling of cargo; and various associated logistics providers operating within the port area.
- Regulatory: This category comprises international organizations (like the International Maritime Organization/IMO), national governments, classification societies, and regional agencies. These bodies are responsible for creating, establishing, and enforcing the rules, standards, and policies that govern maritime activities, particularly concerning safety, security, and environmental compliance.
- Service Providers: This group is made up of businesses that deliver a variety of essential services. This includes bunker companies (which supply fuel), maritime technology firms, and providers of legal services.
- Operators: This term primarily applies to the ship owners and operators responsible for overseeing the daily activities of the vessels. This management includes executing voyages, handling crew matters, and ensuring proper maintenance.

Linear Shipping Connectivity Index (LSCI):
It is a metric developed by the UNCTAD to assess how well countries are integrated into global liner shipping networks. It serves as an indicator of a nation's accessibility to international trade routes via container shipping.
The LSCI is calculated based on six key components:

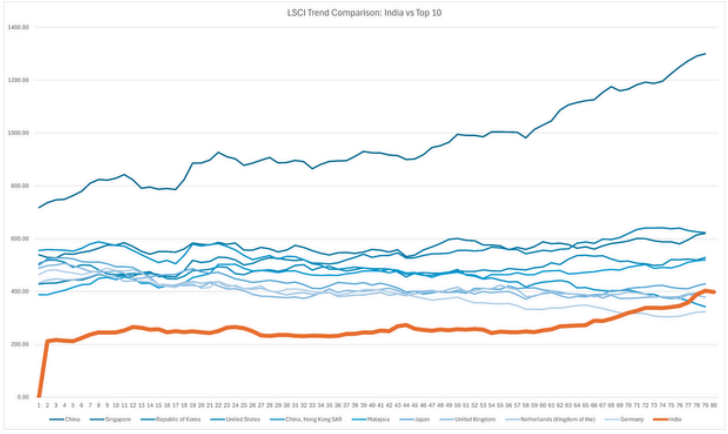
1. Number of ships deployed in a country's ports.
2. Container-carrying capacity of these ships.
3. Maximum vessel size calling at the country's ports.
4. Number of services connecting the country to other ports.
5. Number of direct country-pair connections.
6. Number of companies deploying container ships in the country's ports.

Each component is normalized by dividing the country's value by the maximum value observed in 2004, and the average of these normalized values is then scaled to 100, representing the highest connectivity observed in the baseline year.

A higher LSCI indicates better integration into global shipping networks, facilitating easier access to international markets. Conversely, a lower LSCI suggests limited connectivity, which can hinder a country's participation in global trade.

LSCI of 191 economies (Quarter-wise): Countries LSCI by Quarter.xlsx

Comparison of LSCI trends of India vs Top 10 Economies (YTD):



The LSCI chart clearly shows that global shipping is not balanced. A few countries control most of the world's trade connections, while India, though improving, still depends on them for access. This gap is not just about ports or ships, but it also shows who has real power in global trade and how that power can shape India's position in the world economy.

- Strategic Vulnerabilities (5 main chokepoints)

- 1. Shipping Fleets

Fleet Ownership Data (Top 35 Countries by Share in Total DWT)

Source: UNCTAD Reports (2016-25)

The data indicates that Greece, China and Japan consistently rank as the top three nations in global shipping fleet ownership by deadweight tonnage (DWT).

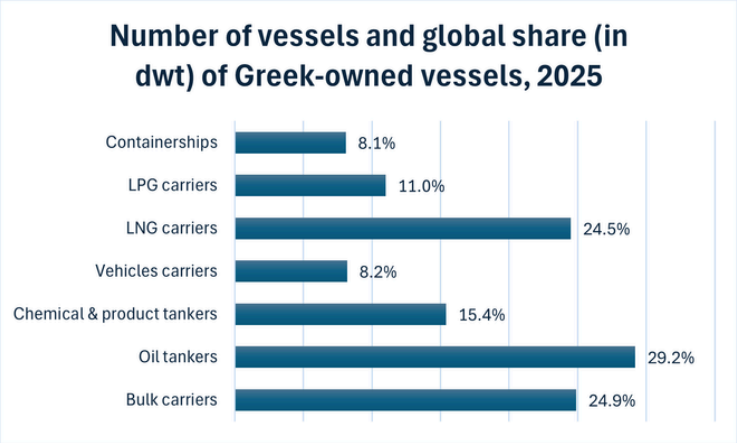
JUST FOR OUR UNDERSTANDING: Deadweight tonnage (DWT) is the maximum weight a ship can safely carry, including its cargo, fuel, fresh water, ballast water, provisions, passengers and crew.

How does Greece have such a dominant position?

Greece is a nation that represents less than 0.5 percent of global GDP, yet it comes to oversee almost 20 percent of the world's oceangoing cargo capacity. Maritime transport accounts for about 90-95% of global trade by volume, and Greek vessels play a central role within this system. Greece's influence on international trade, energy security, and raw material flows is highly disproportionate to its national economy. According to the UN Conference on Trade and Development (UNCTAD) and the Union of Greek Shipowners (UGS), Greece has retained its title as the world's leading shipping power in 2024 and 2025. It has around 16.4% of the world's total dead weight tonnage (DWT), which is 397,649,662 out of 2,419,546,107 dead weight tons, as per the UNCTAD Review of Maritime Transport report, 2025. The Greek-owned fleet comprises around 5,691 vessels.

The maritime sector in Greece's economy contributes around 7-8% of its GDP, and generates around $40 billion in annual revenue. It contributes to around $14 billion in economic value (investment by Greek shipowners in other sectors like real estate, energy and tourism), and generates about 150,000 to 160,000 jobs. It also contributes to balancing the nation's trade deficit, accounting for nearly one-third of it in 2018.

The Greek fleet also leads across all major vessel categories, ranking first globally for tankers and bulk carriers. It also controls the world's largest fleet of Liquefied Natural Gas (LNG) carriers and the second-largest in Liquefied Petroleum Gas (LPG) fleets.



Source: Union of Greece Shipowners - Annual Report 2024-25

Reasons behind Greece's dominance

Greece's dominance in global shipping is the result of a unique combination of factors like ancient heritage, adaptive business models, global networks and strategic management.

Shipping is arguably the oldest Greek occupation, evidenced and supported by the nation's geography. It has the longest coastline in Europe, which is around 13,676 km. This culture has led to the creation of a vast reservoir of institutional knowledge and specialized expertise passed down through generations, gradually building a culture of seamanship.

The industry is also characterized by adaptive business models, which are family-owned structures, counter-cyclical investment and tramp shipping dominance.

- *Family-owned companies have the benefits of rapid, flexible decision-making, minimizing bureaucracy and enabling swift responses to market volatility, primarily due to the fact that the leaders are both owners and CEOs.*
- *Greek shipowners are known for their spirit for entrepreneurship, often investing heavily in ships during economic downturns when vessel prices are low.*
- *Greek companies operate in the tramp (commodity) trade, where shipping vessels do not follow fixed schedules but travel wherever cargo is available, allowing huge scope for flexibility to exploit market opportunities globally.*

Another factor contributing to its shipping industry dominance is its collaborative and global networks. The industry's global reach was pioneered by 19th-century diaspora networks of Chiot and Ionian families who established operations in London, Marseille, and across the Black Sea. This tradition continues today, with major Greek shipping companies maintaining their headquarters and operational offices not only in Piraeus but also in London, Singapore, New York and Hong Kong.[4] Kinship ties and shared island origins have long served as a foundation of trust and cooperation within the industry. This is shown in cooperative organizations such as the Union of Greek Shipowners (UGS), crewing procedures and business partnerships.

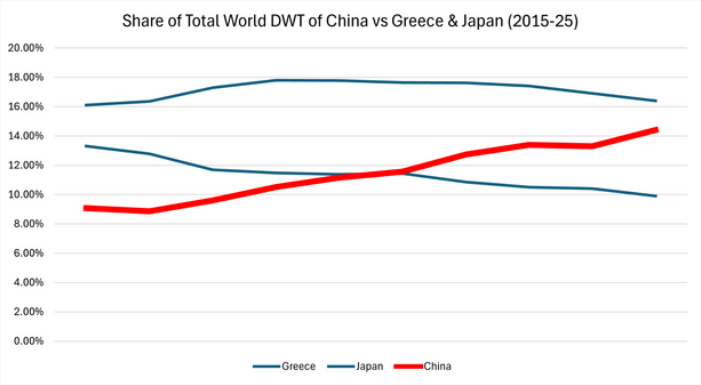
Greece has adopted several effective strategies, like focusing on capacity (DWT) of vessels leading to economies of scale and greater efficiency, shipowners diversifying their investments in all major vessel types (tankers, bulk carriers, LNG carriers, containerships) to balance risk, and many firms maintaining in-house technical and managerial crew, enhancing overall operational efficiency.

China and Japan

China has the second-largest share, while Japan has the third-largest share in global shipping fleet ownership by DWT. According to the UNCTAD Review of Maritime Transport report 2025, the share of China in World Total DWT is 14.4%, and the share of Japan is 9.9%.

China, when combined with Hong Kong's share (5.8%), becomes the leading ship-owning nation. [1] China has a total fleet value of $255 billion, which is the largest share owned by any country.

Comparison of Shares of Global Fleet Ownership over 10 years (2015-25) of Greece, Japan and China:



The data shows that Greece's share has been declining gradually, and Japan's share has also significantly decreased, from 13.3% in 2015 to 9.9% in 2025[1]. On the contrary, China's share has been increasing, from 9.08% in 2015 to 14.4% in 2025.

CAGR was calculated using the absolute DWT values (fleet ownership) of Greece, Japan, China, and the global fleet (based on UNCTAD data for 2015 and 2025). Using these growth rates, the DWT for 2035 was estimated (assuming all other factors to be constant), and then the shares in world total DWT (%) of Greece, Japan and China were calculated.

Country	DWT in 2015	DWT in 2025	CAGR	Estimated DWT in 2035
Greece	279,429,790	397,649,662	3.23%	546,267,973.58
Japan	230,675,179	240,678,389	0.38%	250,051,637.22
China	157,557,210	347,215,014	7.37%	707,037,892.06
World	1,734,561,367	2,419,546,107	3.04%	3,264,552,913.58

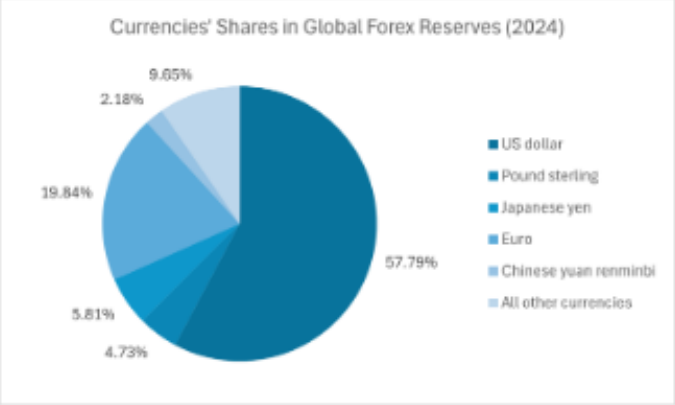
Country	Share in World Total DWT 2025	Estimated Share in World Total DWT 2035	Percentage Change
Greece	16.40%	16.73%	2.01%
Japan	9.90%	7.66%	-22.63%
China	14.40%	21.66%	50.42%

The data shows how global fleet ownership is shifting. Greece's share remains steady, as it rises by around 2%. Japan's share continues to decline to nearly three-fourth of its value. On the contrary, China's share grows significantly, by more than half of its original value, and overtakes Greece. This indicates how China's share is likely reaching over 20% of the world's DWT by 2035, highlighting China's strong and rising presence in global shipping. It also indicates that Japan's share has been declining ever since, which is largely due to the shifting focus of several Japanese owners from overall expansion across all vessel categories, to specialised areas. Japan owns the largest fleets in the world in the LPG, LNG, Reefers and Vehicle Carriers, which value at $15.1 billion, $40.9 billion, $1.3 billion and $24.8 billion, respectively.[5] China has such a large global fleet value, because it has bulk carriers and containerships worth around $68.4 billion and $63.5 billion, respectively, which is the largest by any country. This has been primarily due to the improving market fundamentals, because of the Red Sea Crisis, as vessels reroute around the Cape of Good Hope to avoid problems, leading to an increase in the tonne mile demand for many sectors.[5]

2. Finance Systems

Dominance of the US Dollar: Historical Factors, Current Position and Rise of Alternatives.

The US dollar has gained its dominance from a sequence of structural and institutional changes, particularly in the 20th century. It has a great influence on global maritime trade due to the historical advantages and the depth of the US financial markets. The dollar effectively displaced sterling as the world's principal reserve currency during the first half of the century. This was largely due to the European belligerents suffering severe economic contraction, inflation and gold depletion in both World Wars, while the US became the principal creditor. By the early 1940s, the US possessed the largest gold reserves in the world, a position consolidated by the fact that wartime supply transactions with the Allies were settled in gold. Britain suspended the gold standard in 1931, and ultimately abandoned its pre-war parity, allowing the US dollar to overtake sterling as the anchor currency for global trade and finance. This was institutionalised in 1944 at Bretton Woods, where 44 Allied nations codified a fixed exchange rate regime centred on the dollar, which was itself pegged to gold at $35 per ounce. This arrangement led to the United States having the unique privilege of issuing the only currency in the world that could be converted into gold at a fixed price. As a result, the dollar was embedded at the core of the international finance system.



More than 50 percent of all cross border trade invoices are denominated in dollars, and the currency is involved in nearly 90 percent of global foreign exchange transactions. Approximately two-thirds of global sovereign and corporate debt is also denominated in dollars. These data figures reflect how firms and governments have increasingly preferred the liquidity, stability and credibility of US financial markets. Over 1 trillion US dollars in notes are estimated to be held abroad, further illustrating the extent of its preference as a global store of value. Because of the majority of global payments, trade finance instruments and commodity transactions ultimately depending on the US-controlled dollar as well as the Federal Reserve's banking channels, the CHIPS clearing house and SWIFT, the US has the power to unilaterally restrict access to dollar settlement. Sanctions have become system-wide and not bilateral. Even non-US firms risk losing access to dollar settlement if they transact with an economy which is sanctioned. This capacity to regulate and modify the global financial connectivity, is what scholars describe as the 'exorbitant privilege', enabling the US to borrow at low interest rates, have macroeconomic flexibility and enforce its political preferences. Thus, the increasing frequency of sanctions imposed by the US has led to some economies attempting to diversify their reserve portfolios, particularly towards gold, or by developing alternative payment infrastructures like China's Cross-Border Interbank Payment System (CIPS). Despite their limitation in scale when compared to SWIFT or CHIPS, these measures reflect the perceived vulnerability associated with over-reliance on the US dollars.

Coming to the maritime landscape, most internationally traded commodities like crude oil, refined petroleum products, LNG, coal, grains, metals, etc., are priced in dollars, irrespective of where their producers or buyers are located. Therefore, the dollar determines not only the settlement procedures, but also the exposure to

exchange rate fluctuations. A stronger dollar would lead to an increase in the local currency price of imports denominated in dollars, suppressing demand in non-US markets, thereby affecting both seaborne trade volumes and freight rates. On the other hand, a weaker dollar would stimulate commodity demand in non-US markets by increasing purchasing power, often leading to higher shipping volumes across major maritime routes. Even transactions between non-US currencies often pass through the dollar, due to lower transaction costs and deeper liquidity. Therefore, global shipping finance, insurance settlements and chartering contracts now have reduced frictions, but the US dollar is constantly being reinforced as the dominant 'vehicle currency'.

The strategic impact is that US sanctions can heavily disrupt maritime supply chains, even beyond the immediate target nation. When a nation loses access to dollar clearing, it becomes unable to settle freight payments, chartering vessels, insuring ships or transacting in commodity markets. As a result, shipping, insurance and banking firms globally withdraw from deals with such a nation, to avoid facing consequences themselves. There is a pursuit of alternatives reflecting a desire to insulate maritime trade from this chokepoint, but they remain highly limited by liquidity, jurisdictional and global standardisation constraints.

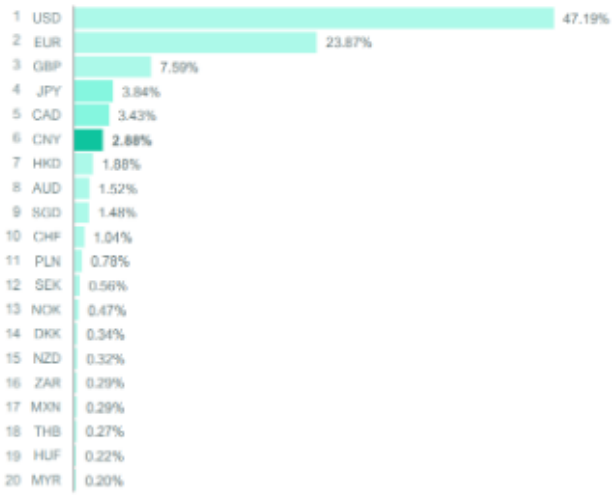
SWIFT System: Is it really neutral?

SWIFT (Society for Worldwide Interbank Financial Telecommunication) is a global cooperative based in Belgium that provides a secure, standardized financial messaging network used by more than 11,500 institutions, over 200 economies. It was founded in 1973 by 239 banks from 15 different countries, replacing the inefficient Telex system, and became operational in 1977. Instead of moving money itself, it facilitates communication by sending payment instructions between financial institutions. Actual funds are transferred separately through correspondent banks. Its key strength lies in its standardized message types and protocols (ISO-based), allowing all banking systems to 'speak the same language'.

SWIFT is structured as a cooperative under Belgian law, and its shareholders are its member financial institutions. It is governed by a 25-member Board of Directors, elected by its shareholders via National Member Groups (NMGs). Allocation of board seats and shareholdings is done on the basis of how actively a country's banks are sending its messages via SWIFT. This setup aligns SWIFT's governance interests with the large financial institutions in wealthy economies, which in turn tend to reflect the geopolitical priorities of their home states.

The National Bank of Belgium leads SWIFT's oversight, but it functions along with the G-10 central banks, which include the U.S. Federal Reserve, the Bank of England, the European Central Bank, Deutsche Bundesbank and others. Over time, this oversight architecture formally institutionalizes Western influence over SWIFT's strategic, technical and risk-management decisions.

Legally, SWIFT must comply with European (Belgian) law. This implies that when EU or US sanctions are imposed, SWIFT is legally obliged to act. This could be seen in cases like the exclusion of Iranian banks in 2012, and Russian banks in 2022. When the EU imposed these sanctions, SWIFT disconnected the targeted banks in compliance with EU regulations. According to the Banque de France, although SWIFT itself has 'no authority to make sanctions decisions', it acts under 'decisions of the Council of the European Union'. While SWIFT claims to be neutral, its power to enforce de-banking depends on country-level decisions and not its independent corporate decisions.



Currencies' shares in total messages exchanged on SWIFT (based on value)

According to data from the SWIFT RMB Tracker (July 2025), the US dollar has a share of 47.19% in global SWIFT messages, followed by Euro having a share of 23.87%. Other currencies have shares less than 10%. Most of the world's cross-border payment traffic runs through SWIFT, and most SWIFT traffic runs through dollars or euros. This data counters the argument about the diversification of global payments.

Global FX Clearing

New York and London are the twin hubs for global foreign exchange clearing. According to the BIS, the UK handles nearly 38% of global FX clearing, which is far more than any country. London was the financial capital of the world during the 19th and early 20th century, due to sterling being the global reserve currency. Legal certainty, deep banking networks, global trading desks and an overlap of time zones (Asian morning + US afternoon) have led to London becoming a hub for global FX clearing. According to the BIS, the US dollar is involved in nearly 89% of all global foreign exchange trade. Global commodities, international debts and trade contracts are mostly denominated in dollars.

Also, FX trading heavily routes through the dollar. This has led to the US dollar's liquidity becoming critical for FX trading, and this liquidity is provided by banks concentrated in New York and London, thus acting as the gatekeepers for cross-border dollar transactions.

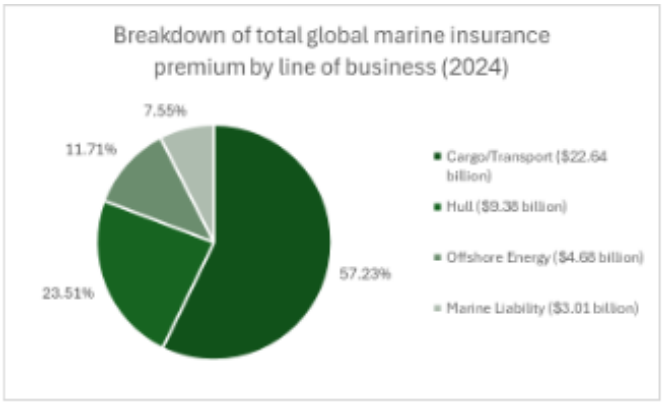
Foreign exchange settlement runs through CLS, which uses a unique payment vs payment system (PvP), and settles around $7 trillion daily. Its largest settlement currency is the US dollar (around 70%), followed by the euro, the Great Britain Pound (GBP) and the Japanese yen. According to the analysis of SWIFT data by the Committee on Payments and Market Infrastructures (CPMI), around 50% of global SWIFT payment value is denominated in the US dollar. Due to regulatory pressures like sanctions, fewer correspondent banks exist today. This has led to higher dependence on US and UK banks.

3. Insurance

Marine insurance plays a central role in deciding who controls global maritime trade. The structure of the insurance industry, the legal systems it relies on, and the financial capacity behind it together create a powerful chokepoint. Western countries, especially the United Kingdom and the European Union, hold a dominant position in this system. This gives them indirect authority over which ships can operate, which routes remain open, and how global trade flows respond to political and economic pressure.

The global marine insurance market was valued at about $39.92 billion in 2024. Liability insurance for ship operators is handled mainly by a network of large mutual insurers known collectively as the International Group of P and I (Protection and Indemnity) Clubs. This group covers about 90 percent of all ocean going

commercial ships measured by tonnage. Hull and cargo insurance, which protects the physical vessel and the goods on board, is strongly centered in the London commercial insurance market. London alone accounts for roughly one-third of global marine insurance premiums. These two facts together show that Western institutions control both the legal responsibility of ship operators and the financial protection of ships and cargo. No other region comes close to matching this scale.



This dominance is enforced through several reinforcing mechanisms. The first is the legal environment. Most marine insurance contracts follow English law, and many international ports and regulators require proof of insurance that is issued by these Western based insurers. Without this proof, a ship may not be allowed to enter a port or take on a charter. The second mechanism is financial capacity. The International Group operates a shared system in which clubs pool major risks and then buy very large reinsurance covers from global markets. This gives them extremely high claim limits, which other insurers outside this network cannot currently match. The third mechanism is operational dependence. In many cases, ships need guarantees from their insurer to be released after an accident, to pay for pollution clean up, or to settle claims. Finally, insurers are required by UK, EU and United States authorities to follow sanctions rules. If a ship is linked to a sanction violation, the insurer must withdraw cover. Once cover is withdrawn, the ship effectively becomes unusable in mainstream global trade.

Recent geopolitical events show how powerful this system is. After the oil price cap on Russian crude was introduced, many ships shifted away from the International Group because they could no longer comply with Western sanctions rules. Industry estimates suggest around 800 tankers moved into alternative insurance arrangements. Russia created a state backed reinsurance system, and China expanded its domestic P and I club, which has a fleet of about 97 million gross tons. However, these alternatives still lack the financial strength, the international acceptance, and the large global service networks of the Western system. Ships using non Western insurance often struggle to enter certain ports or to secure charters from major trading companies.

These developments show that although some countries are attempting to build separate systems, the barriers to entry are very high. New insurers need very large amounts of capital, global recognition from regulators and ports, and legal expertise that is deeply embedded in London. As of now, no alternative system provides the same reliability or global acceptance. This confirms that Western countries maintain a decisive advantage in marine insurance, which in turn gives them leverage over global maritime trade.

4. Law

Global maritime governance presents an apparent framework of neutrality anchored in the provisions of the United Nations Convention on the Law of the Sea (UNCLOS). The Convention establishes jurisdictional rights across territorial seas, exclusive economic zones and the high seas, alongside principles such as the freedom of navigation and the obligation of flag states to exercise effective control over vessels flying their

flag. Yet the operational reality diverges significantly from these ideals. The uneven implementation of flag state obligations, the widespread use of flags of convenience, the concentration of commercial leverage in Western dominated insurance markets and the varied enforcement practices of states collectively create persistent asymmetries in power and influence. These asymmetries are further intensified by geopolitical competition, sanctions and the rise of alternative fleets operating outside the conventional regulatory order.

The shortcomings of the flag state system represent the most fundamental distortion, as large parts of the global fleet exploit open registries such as Panama, Liberia and the Marshall Islands to avoid the stricter labour regulations, safety standards and tax obligations of traditional registries. By 2024 these three open registries together held more than 46% of the world's carrying capacity, and by 2025 they represented nearly 50% of the global fleet by deadweight tonnage. Open registries also facilitate opaque ownership structures that allow shipowners to conceal their identities through chains of shell companies, making beneficial ownership almost impenetrable for law enforcement and taxation authorities. This opacity has historically enabled criminal activity including drug trafficking, sanctions evasion and human trafficking, with Cambodian flagged vessels providing an extreme example before the registry was closed to foreign ships. The same structural weaknesses have enabled the creation of a large shadow fleet of older tankers operating with minimal oversight to transport sanctioned Russian and Iranian oil to markets in Asia and Latin America. The United States has sanctioned more than 170 such vessels and has resorted to naval interdiction, including the deployment of the destroyer USS Stockdale to block the sanctioned tanker Seahorse from approaching Venezuela on three separate occasions.

These systemic weaknesses have compelled port states to develop Port State Control (PSC) regimes as a secondary enforcement layer to compensate for flag state failures. PSC officers inspect foreign ships to verify compliance with conventions such as SOLAS (International Convention for the Safety of Life at Sea), MARPOL (International Convention for the Prevention of Pollution from Ships), STCW (Standards of Training, Certification, and Watchkeeping for Seafarers) and the Maritime Labour Convention. The inspection process uses risk-based targeting in which the ship's flag, age, type, previous deficiencies and the performance of its recognized organization heavily determine the likelihood of detention. A study of 178,153 inspections in the Asia Pacific region between 2010 and 2015 confirmed that the flag state is the single most influential determinant of detention, followed by ship type and the performance of the recognized organization. The Paris MoU, which conducts approximately 18,000 inspections annually, reported 665 detentions in 2024 out of 16,508 inspections, resulting in a detention rate of 4.03%. The most frequent deficiencies that year related to fire safety, safety of navigation, life saving appliances, the International Safety Management Code and labour conditions. Flag performance varied significantly. Panama, listed on the Grey List for the 2022 to 2024 period, recorded 5,854 inspections and 390 detentions, equivalent to a 2024 detention rate of 5.2%. Palau, listed on the Black List, recorded an 11.5% detention rate in 2024. Such disparities highlight the unevenness that PSC regimes attempt to correct.

Even more consequential than administrative inspections is the commercial chokehold imposed by the marine insurance sector. The International Group of P and I Clubs is an oligopoly of twelve mutual associations that collectively insure about 90% of the world's ocean going tonnage. Their financial capacity includes reinsurance

arrangements providing up to 2.1 billion dollars for general claims and one billion dollars for oil pollution claims in the 2025 to 2026 policy year. Because entry into many ports is contingent on proof of liability coverage through instruments such as Blue Cards, loss of P and I cover effectively prohibits global operations. This concentration of control in London and other Western jurisdictions has turned insurance into an instrument of economic statecraft. The G7 Oil Price Cap regime prohibits the provision of insurance for Russian oil sold above the permitted threshold, which has already forced an estimated 800 tankers to exit the International Group system and rely on alternative arrangements. Russia created the state controlled Russian National Reinsurance Company to support continued operations of its shadow fleet and China has treated this concentration of Western insurance capacity as a strategic vulnerability. In 2025 the China Shipowners Mutual Assurance Association reported over 97 million gross tons of entered P and I tonnage and the country continues to develop domestic insurance infrastructure to reduce reliance on foreign clubs.

Alongside administrative and commercial mechanisms, naval enforcement also features prominently. Freedom of Navigation Operations conducted by the United States serve to challenge what it considers excessive maritime claims that impede internationally accepted navigational rights. In fiscal year 2018 the United States challenged excessive claims asserted by 26 states. In the South China Sea these operations are directed primarily at Chinese claims associated with the nine dash line. China has reclaimed approximately 2,470 acres of land across seven artificial islands and has reacted increasingly forcefully to such operations. Between 2016 and 2023 the United States conducted forty six FONOPs in the South China Sea and China has repeatedly claimed to have driven away US vessels. Notable episodes include consecutive FONOPs in April 2020 involving the destroyer USS Barry and the cruiser USS Bunker Hill as well as the deployment of the cruiser USS Chancellorsville in November 2022. On May 10, 2024 the USS Halsey challenged restrictions imposed by China, Taiwan and Vietnam on innocent passage near the Paracel Islands. Such operations underscore the contested nature of maritime rights even under a supposedly neutral legal framework.

The intersections of law, commercial leverage, administrative control and geopolitics are further illuminated by the actions of the Panamanian Ship Registry, which has undertaken large scale delistings under international pressure. Since 2019 Panama has removed more than 650 vessels linked to sanctions evasion. In the first quarter of 2025 it removed 68 vessels sanctioned by the United States and an additional 107 vessels suspected of sanctions violations. On August 3, 2025 Panama removed 17 vessels targeted by a US sanctions package and simultaneously closed its registry to oil tankers and bulk carriers older than 15 years after internal data indicated that 71 percent of its detentions between 2023 and mid 2025 involved such vessels. These measures reduced the share of Iran linked shadow fleet tankers registered in Panama from approximately 60 percent to about 17 percent.

Taken together, these dynamics reveal that the neutral legal order embodied in UNCLOS operates within a system where enforcement capabilities, market structures and geopolitical bargaining power determine actual outcomes. The result is a maritime environment in which Western states and their commercial institutions wield disproportionate influence through insurance controls, sanctions enforcement, administrative action and naval operations, while weaknesses in flag state oversight and the persistence of shadow fleets complicate efforts to

uphold safety, environmental protection and the rule of law.

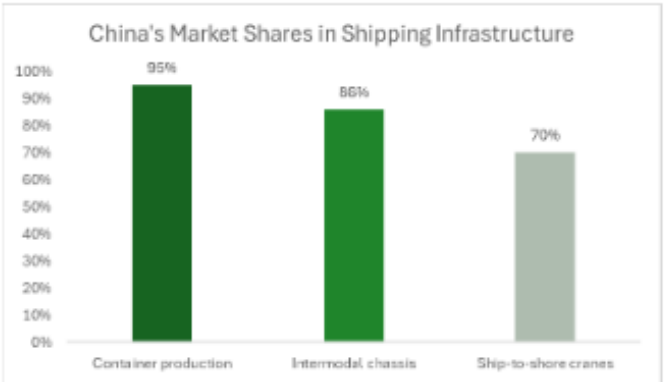
5. Chinese Shipbuilding Dominance

China's shipbuilding position in 2024 and 2025 reflects a shift from a commercial industry into a strategic instrument. China produced roughly 53 percent of global commercial shipbuilding output in 2024 and controlled close to 63.7 percent of the global orderbook by gross tonnage at the start of 2025. State-owned conglomerates, particularly CSSC (China State Shipbuilding Corporation), sit at the centre of this rise, and the industrial ecosystem around them now supports both commercial scale and the rapid modernisation of the PLA Navy.

The contrast with competitors is stark. South Korea accounts for around 29 percent of global output, Japan around 13 percent, and the rest of the world only about 4 percent. Chinese yards also captured roughly three quarters of all new global orders in the first nine months of 2024, illustrating how decisively the balance has tilted.

The dominance extends well beyond shipyards. China manufactures about 95 percent of global shipping containers, nearly 86 percent of intermodal chassis and more than 70 percent of ship to shore cranes. By 2024 it had also become the world's largest shipowner by gross tonnage and controlled around 19.1 percent of the world's commercial fleet by deadweight. CSSC on its own built more commercial tonnage in 2024 than the entire United States commercial industry has produced since the end of the Second World War.

After the 2019 merger of CSSC and CSIC, a single enterprise controlled over one fifth of the global market. All of this has been supported by the Chinese state. Between 2010 and 2018 estimated state support reached nearly $132 billion. State lenders such as CEXIM provided preferential financing that made up roughly 40 percent of global new ship financing since 2016. Cost advantages amplify this effect. Steel prices have often been 50 to 60 percent below comparable European and Japanese levels, and labour costs remain sharply lower, with the average Chinese shipyard worker earning roughly 10.6 to 11.4 thousand dollars per year compared with more than 67 thousand in the United States.



This position is not accidental. It is anchored in long term industrial planning through five year plans, sector roadmaps and initiatives such as Made in China 2025. These policies set explicit market share and domestic content targets and align procurement, finance and diplomatic tools to guarantee demand. China's overseas port footprint, which includes stakes in nearly one hundred foreign ports, reinforces this. A network of subsidies, preferential loans, state controlled suppliers and labour arrangements compresses production costs and allows Chinese yards to underbid competitors in ways that signal strategic rather than purely commercial pricing. Technology acquisition, both through partnerships and through systematic assimilation, has enabled a shift from building low complexity ships to producing very large crude carriers, ultra large container ships and even LNG vessels.

Case Studies of Weaponisation of Trade

The Suez Canal Crisis of 1956:

The Suez Canal, completed in 1869 following 10 years of construction, had a very profound effect on global trade by providing a direct maritime trade route from Asia to Europe. Prior to its construction, the vessels that travelled from India to London faced a 10,000 mile journey around the Cape of good Hope. This would take approximately 3-4 months of time. As opposed to this, the Suez Canal made it possible to complete this journey in only about 3-4 weeks, considerably saving both costs and time.

By the 1950s the significance of the Suez canal was immense. For Western Europe, the Suez canal was a lifeline that supplied oil from the middle east to fuel post war recovery. In 1955, nearly two thirds of Europe's Oil Supplies transited the Suez canal. European nations were heavily dependent on the Suez canal for their trade, with major volumes of oil imports of France and Britain flowing via the Canal. Control of the Canal was in the hands of the Suez Canal Company, which was registered in Egypt but a major stake of which was owned by Britain and France. The company operated under a 99 year old lease concession, which was set to expire in 1968.

Egypt was home to a large military installation of the British in the middle east. Under the Anglo-Egyptian treaty of 1936, Britain was permitted to station a troop body of upto 10,000 in Egypt. This became a point of contention that caused conflict to erupt between the British and the Egyptians. The political landscape in Egypt was also undergoing significant change. The 1952 Free Officers coup overthrew King Farouk, bringing Colonel Gamal Abdel Nasser to power. Nasser's ideologies were not aligned with the Western bloc and Soviet influence was slowly being injected into the Middle-East.

He also had a clear view to eliminate British influence in the Middle-East. This naturally led to the development of hostility between Western powers and Nasser. In keeping with this context, the US and Britain withdrew funding for the construction of the Aswan High Dam in July 1956. In the pursuit of alternative funding,

Nasser announced the Nationalisation of the Suez Canal on July 26. He aimed to use the income of the Canal to fund the dam project - around $100 million a year. Both Britain and France viewed the action and Nasser himself as a threat to their influence and considered military action. This created a rift between them and the US, which favored diplomatic avenues. The London Conference held in August to foster negotiation bore no fruit and an orchestration for invasion was planned by the UK, France and Israel. Israel would invade Egypt to provide a pretext for them to intervene to defend the region. .

Effect on Maritime Trade :

As Anglo-French forces approached Egypt, around 40 ships were scuttled to create a blockage. This rendered the canal completely impassable. With the canal blocked, maritime trade was put on halt and had to be rerouted around the cape of good hope, which would obviously result in massive losses both in time and trade activity. The charter rates for cargo carriers and oil tankers increased significantly, The Closure of the Canal, compounded by the sabotage of the Iraq Petroleum Company Pipeline through Syria, led to Europe being cut off from about 2 millions of oil barrels per day. So dire was the oil squeeze in Britain that fuel rationing had to be imposed which lasted from December 1956 to May 1957. Due to strained relations with the US at that moment, the Eisenhower administration made it clear that oil assistance would be contingent on British and French withdrawal from Egypt. Merchant ships from various countries remained trapped in the Great Bitter Lake until the Canal was cleared in April 1957. There were price surges in various industries because of the blockage of the flow of Asian raw materials created.

This Crisis revealed the vulnerabilities of Europe to Middle-Eastern energy supply disruption. In the short term, their energy reserves were not adequate to tackle an energy supply crunch for a long time and the infrastructure necessary for adoption of alternative sources was also absent. The crisis established that chokepoints like the Suez Canal, on which a substantial share of maritime trade relies, could be weaponized effectively. Despite not having a very powerful military force, Egypt was able to cause substantial losses to European nations.

Iran's Nuclear Programme and Sanctions :

Iran's Nuclear Programme had become a point of international concern in the 2000s. In the early 2000s, Iran had announced its nuclear facilities program including Uranium enrichment facilities and the International Atomic Energy Agency(IAEA) reported that Iran had undeclared nuclear ambitions. It also confirmed the presence of traces of highly enriched Uranium, potentially weapons grade. Western Nations and particularly the United States, evidently perpetuating the sour relationship it shared with Iran, suspected Iran of pursuing nuclear capability. Iran, however, maintained that its programme was purely focused towards peaceful energy purposes and denied any nuclear weapons programme. Several rounds of sanctions were imposed against Iran by the UN, US and EU which included bans on its oil exports and barred access to global financial systems.

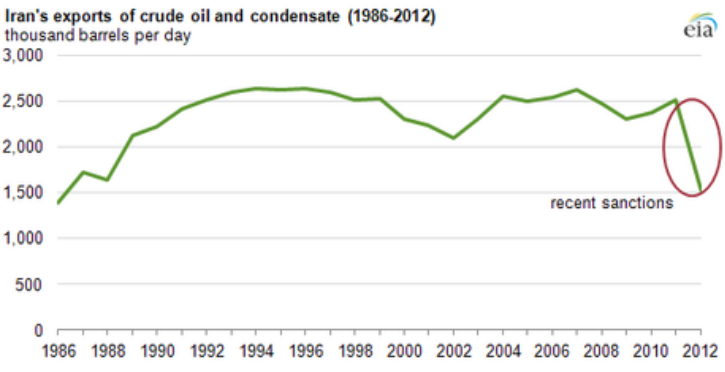
Iran's energy exports were and still are critical to global energy markets. They are also crucial to its own economy. In 2011, Iran was OPEC's second-largest oil producer and the third largest crude oil exporter in the world. In 2010, Iran exported approximately 2.2 million bbl/d of crude oil. Net oil export revenues amounted to approximately $73 billion. To give an idea of just how vital Iran's oil exports are to its economy, this was about half of the government revenue and crude oil and its derivatives accounted for about 80% of Iran's total exports. As a result of these sanctions, Iran lost about 66% of its currency value in just 2 years.

SWIFT Exclusion :

Initially, the US and EU implemented banking sanctions on Iranian Financial Institutions, European banks were prohibited from processing transactions related to Iran. In March 2012, SWIFT (Society for Worldwide Interbank Financial Telecommunication) excluded Iranian Banks from its international messaging system. A Country had never been disconnected from SWIFT before and this unprecedented move made it impossible for Iranian transactions to be executed because of absence of communication with other banks.

Insurance Prohibition :

In July 2012 EU banned European insurers from providing coverage for any vessel that was carrying Iranian Crude oil. The international Group of P&I(Protection and Indemnity) announced that they would cease coverage for any vessel carrying Iranian crude, irrespective of the flag of the vessel or the destination. This was a very significant roadblock for oil exports, because without insurance, it becomes difficult for ships to operate due to port regulations. Even if a port accepts the entry of an uninsured vessel, cargo owners and charterers would be hesitant due to the liability exposure.



This Crisis revealed the vulnerabilities of Europe to Middle-Eastern energy supply disruption. In the short term, their energy reserves were not adequate to tackle an energy supply crunch for a long time and the infrastructure necessary for adoption of alternative sources was also absent. The crisis established that chokepoints like the Suez Canal, on which a substantial share of maritime trade relies, could be weaponized effectively. Despite not having a very powerful military force, Egypt was able to cause substantial losses to European nations.

Iran's Nuclear Programme and Sanctions :

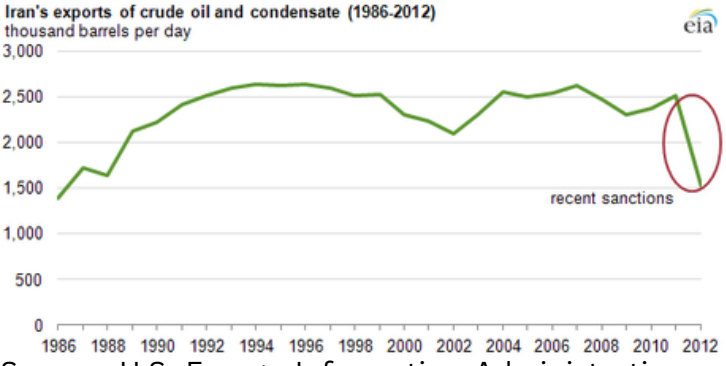
Iran's Nuclear Programme had become a point of international concern in the 2000s. In the early 2000s, Iran had announced its nuclear facilities program including Uranium enrichment facilities and the International Atomic Energy Agency(IAEA) reported that Iran had undeclared nuclear ambitions. It also confirmed the presence of traces of highly enriched Uranium, potentially weapons grade. Western Nations and particularly the United States, evidently perpetuating the sour relationship it shared with Iran, suspected Iran of pursuing nuclear capability. Iran, however, maintained that its programme was purely focused towards peaceful energy purposes and denied any nuclear weapons programme. Several rounds of sanctions were imposed against Iran by the UN, US and EU which included bans on its oil exports and barred access to global financial systems.
Iran's energy exports were and still are critical to global energy markets. They are also crucial to its own economy. In 2011, Iran was OPEC's second-largest oil producer and the third largest crude oil exporter in the world. In 2010, Iran exported approximately 2.2 million bbl/d of crude oil. Net oil export revenues amounted to approximately $73 billion. To give an idea of just how vital Iran's oil exports are to its economy,
this was about half of the government revenue and crude oil and its derivatives accounted for about 80% of Iran's total exports. As a result of these sanctions, Iran lost about 66% of its currency value in just 2 years.

SWIFT Exclusion :

Initially, the US and EU implemented banking sanctions on Iranian Financial Institutions, European banks were prohibited from processing transactions related to Iran. In March 2012, SWIFT (Society for Worldwide Interbank Financial Telecommunication) excluded Iranian Banks from its international messaging system. A Country had never been disconnected from SWIFT before and this unprecedented move made it impossible for Iranian transactions to be executed because of absence of communication with other banks.

Insurance Prohibition :

In July 2012 EU banned European insurers from providing coverage for any vessel that was carrying Iranian Crude oil. The international Group of P&I(Protection and Indemnity) announced that they would cease coverage for any vessel carrying Iranian crude, irrespective of the flag of the vessel or the destination. This was a very significant roadblock for oil exports, because without insurance, it becomes difficult for ships to operate due to port regulations. Even if a port accepts the entry of an uninsured vessel, cargo owners and charterers would be hesitant due to the liability exposure.



Source: U.S. Energy Information Administration, International Energy Statistics Database and Iran Country Analysis Brief.

The effect of all of these sanctions was that exports had fallen from 2.5 million bpd to approximately 1.5 bpd, a 40% decrease. By the end of 2012, it would fall to around 1 million and eventually bottom out around 700,000 bpd in 2013. This was not just a nightmare for Iran but also those countries that were heavily reliant on Iranian Exports for their energy requirements. India in particular faced and acute dilemma because Iran was its second largest oil supplier after Saudi Arabia, providing about 400,000 bpd constituting around 12% of its oil imports. By 2012-13, India's imports from Iran had fallen to around 180,000 bpd, roughly half of what it was before the restrictions were implemented. India eventually had to substitute its imports from other OPEC countries like Saudi, Kuwait,etc. albeit at heightened prices. Many other countries that heavily imported from Iran followed a similar course. These events served as a clear precedent for how much power is wielded by the US and EU in controlling the trade of a country. Despite having physical infrastructure, Iran's vulnerabilities in the form of financial and Insurance dependencies were exposed.

Russia-Ukraine Conflict :

Russia was a very significant contributor to world trade in the form of a big player in energy and commodity exports. It was the second largest exporter of oil after Saudi Arabia in 2022, exporting approximately 7.8 million bpd. Additionally, Russia was the world's largest exporter of natural gas and wheat and was a major player in other areas like fertilizers, metals,etc. European dependency on Russia was predominant, with the EU importing around 27% of its oil and around 40% of its natural gas from Russia in 2021. Many European refineries had even been configured to suit Russian crude grades, creating a technological dependency.

Russia's full scale invasion of Ukraine began on February 24, 2022. Within a few days of the invasion, Western nations began the imposition of sanctions. Even before formal government sanctions, many shipping lines had announced the suspension of Russian bookings. Maersk, MSC, CMA CGM, Hapag-Lloyd,etc announced that they would be halting the bookings of their containers to and from Russia. Major Russian Banks including VTB were disconnected from SWIFT in March. Eventually nearly all banks were excluded except for banks like Sberbank and Gazprombank which were handling energy payments. The UK government announced that UK insurers were not permitted to provide maritime insurance for Russian Vessels or cargoes. The EU followed with similar prohibitions on coverage. The International Group of P&I Clubs also prohibited members from providing coverage to Russian owned vessels or any vessel carrying cargo to and from Russia.

Within a few weeks of the SWIFT exclusion, Russian ports reported longer container dwell times as payment delays were preventing cargo from being released.

Port Access Denial

Beyond the SWIFT and insurance restrictions, port access to Russian flagged vessels was denied. The UK, US and Canada implemented similar restrictions and in extreme cases even those vessels that were previously called at Russian ports were also denied access; forcing vessels to make a choice between the western or Russian markets. A physical isolation was thus effected.

Oil Price Cap

In December 2022, the G7, EU and Australia implemented an oil price cap on Russian crude oil at $60/ barrel. Western insurance and maritime services would be prohibited for Russian oil that was being sold above this price. Due to the dependence of buyers of Russian imports on Western provided maritime services, they were forced to comply. The purpose of this price cap was to prevent the collapse of energy systems worldwide which heavily relied on Russian oil, including the EU. To keep the oil flowing to prevent oil price spikes. Additionally, this would result in heavy losses in Revenue.

As a result of these sanctions, Russia assembled a 'shadow fleet' to combat economic isolation. The Shadow fleet comprised an estimated 600 vessels in 2022, with that number expected to have increased to around 1400 in 2023. These vessels are usually aged tankers with opaque ownership structures frequently registered in flags of convenience jurisdictions, most notably in Gabon, where the ship registry had more than doubled in 2023. The Shadow fleet vessels obtained insurance from mostly unknown Non-Western insurers that are not recognized by most port states. They also sail without Automatic Identification Systems(AIS) to prevent tracking. The Shadow fleet made it possible for Russia to continue exporting crude oil despite the sanctions. However, this was accompanied with higher costs in the form of greater insurance premiums and higher freight rates due to the poor maintenance and old tankers. SPFS(System for Transfer of Financial Messages) was launched in 2014 after Crimea sanctions but this was expanded significantly post 2022. It connected a vast majority of Russian institutions and foreign institutions but handled only a small component of the volume of Russia's SWIFT traffic, indicating limited international adoption. In an attempt to combat reliance on dollar dominated transactions, Russia negotiated yuan-ruble and other bilateral currency arrangements with major partners.

In April 2024, Russia announced that in its trade exchanges with China, it had almost completely eliminated the use of the dollar, highlighting their measures to reduce reliance on western economic systems. Russian domestic insurers like Ingosstrakh RNSK began offering maritime insurance for Russian trade. However, the problem associated with this was that port states, cargo owners and charterers did not accept Russian insurance.

The Economic implications that these events produced upon both Russia and the rest of the world(including the West) are severe. Russia's GDP contracted 2.1% in 2022 according to the IMF. Its oil revenue increased in 2022 as compared to the previous year due to high prices in the initial portion of the year but subsequently declined in 2023 by an estimated one third year on year in the June quarter(Reuters). Through this period, Russian trade had shifted from Europe to Asia. China became a very major trading partner, while India ramped up its Russian oil imports in 2023.

Tariffs in 2025

India increased Russian oil imports from approximately 35,000 bpd pre conflict(less than 1% of Indian imports) to over 1.8 million bpd by mid 2023- making Russia India's largest oil supplier, surpassing Iraq and Saudi Arabia. This saved India a significant amount of around $12.6 billion in a matter of three years(Indian Express). India was subjected to an initial 25% tariff on a wide range of Indian goods on August 1,2025. This was in response to India's general trade practices and barriers. On August 6, the US announced an additional 25% tariff which was intended as a penalty for the continued purchase of Russian oil by India. India maintained its stance, claiming that the tariffs were unfair as the oil imports were necessary to sustain its energy requirements. This measure demonstrated the ability of the US to weaponize economic tools like tariffs to distort the markets to suit its geopolitical agenda.

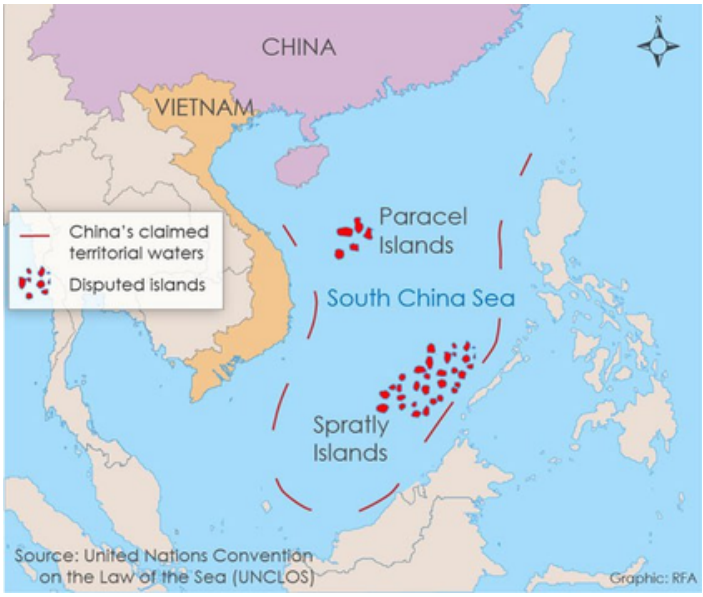
The Russia Ukraine War and its economic consequences established very dangerous precedents for Non-Western nations. Apart from Russia, various developing economies suffered and had to comply with terms that the US dictated. There were wide ranging shocks around the world. Energy prices surged due to sanctions while disruptions in wheat supply led to price spikes, threatening food security in import dependent developing nations, particularly Africa and Middle-East. Agricultural production was also impacted detrimentally as Russia held a major share of the fertilizer market. Container rates were also subject to surges due to the increase in European imports by Asian Nations as a substitute for Russian imports. Russia, as one of the P5 nations of the United Nations Security Council, a nuclear power, and a behemoth in world trade share, was pushed into near complete economic isolation. If Russia is subject to such exercise of power by the West, hypothetically developing nations are also vulnerable to these dependencies.

South China Sea Dispute :

The South China Sea is a contentious water body encompassing about 3.5 million square kilometres of ocean that is bounded by China, Vietnam, Philippines, Brunei, Malaysia, and Taiwan. Despite covering only about 3% of the world's ocean surface, the South China sea carries approximately $5.3 trillion in annual trade, roughly one third of global maritime commerce. The waterway is of critical importance for East Asian Economies. Approximately 40% of China's trade and about 80% of its energy imports pass through the South China sea via the Malacca strait. Japan and South Korea receive nearly all of their Middle-Eastern Oil through these waters. Beyond crucial trade routes, the South China Sea contains considerable amounts of hydrocarbon reserves - estimated 11 billion barrels of oil and 190 trillion cubic feet of natural gas and is also a very productive fishing ground, providing livelihood for millions.

The Nine Dash Line

In the year 1947 China published a map wherein it drew a nine dash line around the South China Sea. China then declared that all the area within this nine dash line would fall under its sovereign powers. China subsequently began the occupation of the islands in the South China Sea and displaced the armies of other neighboring countries. It started building air bases and patrolling the area with its army. As a consequence the neighboring nations began questioning the validity of the Nine dash Line. This included the areas of the Exclusive Economic Zones(EEZ) of the other nations under the United



Nations Convention of the Laws of the Sea(UNCLOS), which is the area within 200 nautical miles of their coasts. China has never precisely defined what rights it claims within the line- whether it is full sovereignty, historic rights to resources or something else. This is very convenient for China, because it is able to enjoy flexibility while using the claimed area. China has embarked upon the modernization of the maritime paramilitary forces as well as naval capabilities.

It claims that the construction is intended to improve the working conditions of the people stationed on the islands and that China is aiming to provide shelter, aid in navigation, weather forecasts and fishery assistance to ships of

various nations that pass through the region. IHS Janes states that it is a methodical, well planned campaign to create a chain of air and sea capable fortresses. By 2018, China had deployed anti-ship cruise missiles, surface to air missile systems and military radar to the installations in Fiery Cross Reef, Subi Reef, Mischief Reef. These facilities provide it with radar coverage, air and naval basing, and power projection capabilities throughout the South China Sea.

China's Claims and the UNCLOS

In 2016, The Philippines brought a case against China under the UNCLOS to the Permanent court of Arbitration in The Hague. The tribunal found China's claims to historic rights within the nine dash line had no legal basis under UNCLOS. This convention provides for Exclusive Economic zones and continental shelves based on land territory and not historical claims to ocean areas. China claimed that it made certain exceptions to the UNCLOS. The UNCLOS is not customary international law and thus all of it does not apply to anyone. It only applies to a State if the State chooses to become a party to it via ratification. Article 298 of the UNCLOS further states that a state may issue a declaration during or at any point after the ratification of the convention wherein it creates certain exceptions. China rejected the ruling, characterizing it as null or void.

Freedom of Navigation

UNCLOS Articles 18 and 19 allow foreign vessels to travel through the territorial sea as long as they are not prejudicial to the peace, good order or security of the coastal state. China's law on the Territorial Sea and Contiguous zone requires foreign military vessels to request permission for such passage on the basis of the argument that the presence of any warship is prejudicial to the peace and good order. China's installations at southern portions of the Spratlys islands lend it the power to monitor and influence the trade traffic passing through the Malacca strait. Commercial transit has been interrupted by China before by designating exclusion zones for military exercises, some lasting weeks, which causes vessels to reroute. USA practices routine drills wherein they move military naval vessels to several locations in the South China Sea and call this freedom of navigation. This is intended to challenge the autonomy that China is gradually gaining over the sea routes of the South China Sea. These Freedom of Navigation Operations(FONOPS) have been conducted since the 1970s, but their frequency had increased in response to Chinese militarization.

The South China sea dispute is a case where a nation has used brute force to establish claims to the Sea and serves as a prelude to a potential future weaponization. The dispute exists with various south-east Asian countries and the tensions with the US routine drills only serve to add fuel to the fire. Territorial disputes in the oceans can create vulnerabilities for trade as it can hamper the free flow of trade.

Policy Frameworks:

India's maritime sector, with a 7,500 km coastline and 14,500 km of navigable waterways, is crucial to the nation's economy. It handles over 95% of trade by volume and makes a significant contribution to GDP through ports, shipping, shipbuilding, and logistics. The policy frameworks for this sector have shifted from being focused solely on ports to integrated, multimodal strategies that match India's wider economic goals. Important frameworks include the Sagarmala Programme (launched in 2015), Maritime India Vision 2030 (MIV 2030, 2020), National Logistics Policy (NLP, 2022), and the broader Maritime Amrit Kaal Vision 2047. These policies aim to lower logistics costs (currently 13-14% of GDP, twice the global average), improve port efficiency, promote shipbuilding, and make India a global maritime leader. However, despite these advancements, issues like connectivity bottlenecks and implementation delays continue to exist. This overview analyzes each framework, compares objectives with outcomes, and looks at existing gaps.

Sagarmala Programme: Port-Led Coastal Development :

Launched in 2015 by the Ministry of Ports, Shipping and Waterways (MoPSW), Sagarmala is an initiative aimed at modernizing ports, improving coastal connections, and leveraging the "blue economy" for inclusive growth. It operates on four main pillars: port modernization, port-led industrialization, improving port connectivity, and developing coastal communities.

Core Objectives: The programme aims to lower logistics costs by optimizing cargo movement, filling infrastructure gaps in roads, railways, and inland waterways, and supporting coastal economic zones. It seeks to raise India's share in global shipbuilding to 5% by 2030 and create 10 million jobs through port-related industrial clusters. By using public-private partnerships (PPPs), it targets an annual cargo handling capacity of 3 billion tonnes by 2035, up from 1.4 billion in 2020.

Key Components and Initiatives: Over 800 projects worth ₹5.5 lakh crore have been identified, including 12 new mega ports, dredging for deeper drafts, and multimodal logistics parks. It works alongside the PM Gati Shakti National Master Plan for better infrastructure planning.

Implementation and Milestones: As of March 2025, 272 projects have been completed with ₹1.41 lakh crore invested. This has led to faster port turnaround times (e.g., Jawaharlal Nehru Port's efficiency improved by 20%) and a 15% increase in coastal cargo handling. Recent updates include Sagarmala 2.0, announced in 2025, which allocates ₹40,000 crore for shipbuilding, repair, and recycling to address supply chain issues caused by the pandemic.

Sagarmala has changed India's port landscape from colonial-era facilities to modern hubs. Its continued success depends on ongoing funding and collaboration between ministries.

Maritime India Vision 2030 (MIV 2030): A Blueprint for Maritime Leadership :

Unveiled in 2020, MIV 2030 is a 10-year plan to position India among the top five global maritime economies, aiming for ₹3-3.5 lakh crore in expected investments. It includes 10 key areas, such as ports, shipping, inland waterways, and environmental sustainability, building on the Sagarmala project's foundation.

Core Objectives: The vision focuses on developing top-notch port infrastructure, for example, increasing capacity to 3,000 million tonnes per year. It aims to improve logistics efficiency to reduce costs by 20-30% and boost domestic shipbuilding to 5 million gross tonnes annually. It also highlights green shipping, skill development for 1 million jobs, and the use of technology like automation and AI in port operations.

Key Components and Initiatives: More than 150 actionable initiatives include upgrading existing ports, developing new mega ports like Vadhavan, creating transshipment hubs such as Galathea Bay, and establishing supporting ecosystems like marine design centers. It encourages public-private partnerships and offers fiscal incentives, like tax rebates for shipbuilders.

Implementation and Milestones: By 2025, MIV 2030 aims to have five new terminals operational under public-private partnerships and a 25% rise in container handling at major ports. Investments have generated ₹2 lakh crore in private funds, and cargo on inland waterways has increased tenfold to 150 million tonnes. The vision's focus on sustainability has initiated pilot projects for LNG bunkering and electric ferries.
MIV 2030 positions the maritime sector as a key driver for Atmanirbhar Bharat (self-reliant India), incorporating digital tools like the Unified Logistics Interface Platform (ULIP) for real-time tracking.

National Logistics Policy (NLP) 2022: Streamlining Multimodal Efficiency :

Launched on September 17, 2022, the NLP is a cross-sector policy under the Department for Promotion of Industry and Internal Trade (DPIIT). It focuses on integrated logistics to support manufacturing and exports, complementing maritime-specific frameworks by covering the entire supply chain.

Core Objectives: The policy aims to bring logistics costs down to 8-9% of GDP by 2030 (from 13-14%), move India's Logistics Performance Index (LPI) ranking from 38th (2023) into the top 25, and create a data-driven ecosystem via the Unified Logistics Interface Platform (ULIP). It encourages multimodal integration, standardizes warehousing, and promotes green logistics to handle 4.5 billion tonnes of freight by 2030.

Key Components and Initiatives: Key pillars include digital systems (e.g., E-LogS for tracking), capacity building (training 50,000 professionals annually), and specific roadmaps for maritime, aviation, and rail. It encourages PPPs in logistics parks and requires single-window clearances.

Implementation and Milestones: In its first three years (2022-2025), NLP has onboarded over 1,500 logistics providers to ULIP, cutting documentation time by 40% and improving LPI sub-indices for timeliness. Cargo volumes have increased by 12% annually, with maritime logistics benefiting from integrated corridors like the Eastern Dedicated Freight Corridor.
NLP's tech-driven approach has made India's logistics more robust, although its links to maritime efforts enhance Sagarmala and MIV outcomes.

Amrit Kaal 2047:

The Long-Term Maritime Vision
Amrit Kaal 2047, which represents India's vision for its centennial independence, sets maritime goals extending to 2047 under the Maritime Amrit Kaal Vision 2047 (launched in 2024). It envisions investments of ₹80 lakh crore to position India as a top-three shipbuilding nation and a leader in the blue economy.

Core Objectives: In line with Viksit Bharat @2047, it aims for a 10% share in global shipbuilding, zero-emission ports, and ₹50 lakh crore in blue economy exports. Over 300 initiatives target logistics (e.g., 50 new ports), infrastructure (deep-sea mining), and shipping (autonomous vessels).

Key Components and Initiatives: It builds on MIV 2030 with phased investments: two new mega ports by 2030, full electrification of coastal shipping by 2040, and research and development in ocean technology. It also connects to global partnerships like the Indo-Pacific Economic Framework.

Implementation and Milestones: Initial actions include allocating ₹10 lakh crore for 2025-2030, with pilots for green hydrogen in ports. It integrates NLP's digital backbone for predictive analytics.
This vision portrays maritime as a key part of India's $30 trillion economy by 2047, highlighting sustainability amid climate challenges.

Framework	Key Objectives (Targets by 2030/2047)	Outcomes Achieved (as of 2025)	Progress Metric
Sagarmala	Reduce logistics costs to 10% GDP; 3 BT cargo handling; 10M jobs; full port connectivity.	272 projects completed (₹1.41L cr invested); 15% cargo rise; 2M jobs created; turnaround time down 20%.	60-70% (strong infra, but connectivity lags).
MIV 2030	Port capacity to 3,000 MT; 5M GT shipbuilding; 20-30% cost cut; 1M skilled jobs.	₹2L cr private investment; container handling +25%; inland cargo x10; 5 new terminals.	50-60% (momentum in ports, slower in shipbuilding).
NLP 2022	Logistics cost to 8-9% GDP; LPI top 25; 4.5 BT freight; ULIP for all providers.	Costs down to 12%; LPI to 35th; 12% annual cargo growth; 1,500+ ULIP users (40% time savings).	40-50% (digital gains, but multimodal integration partial).
Amrit Kaal 2047	Top-3 shipbuilding; ₹50L cr blue exports; zero-emission ports; 50 new ports.	₹10L cr initial allocation; 2 green port pilots; shipbuilding incentives rolled out.	10-20% (early stage, foundational investments underway).

Company Case Studies

1. **Mazagon Dock Shipbuilders Limited (MDL)**

1. Business Profile

- Government-owned shipyard based in Mumbai with strong commercial operations alongside defence work.
- Long operating history; over 805 vessels delivered since 1960 across cargo, support, research and passenger categories.
- Shipbuilding capacity: 4,17,600 DWT.

1. Revenue Trend

- FY2024-25: ₹11,431.88 crore
- FY2023-24: ₹9,466.58 crore
- FY2022-23: ₹7,827.18 crore

(c) Commercial Business Model

- Operates on long-term stage-based contracts: payments released only after achieving predefined construction milestones.
- Leads to uneven quarterly revenues, though annual revenues remain stable.
- Same model applied for domestic vessels, export vessels and marine project work.

4. Key Commercial Orders

- Export order- ₹715 crore: six hybrid-powered cargo vessels for a European client whichsignals rising global presence.
- Significant marine project contracts:
- ONGC DSF II: ₹4,676 crore
- PRP 8: ₹1,486 crore

(d) Financial Position

- Low debt, enabling smoother execution of long contracts.
- Contingent liabilities: ₹37,852 crore, tied to long-term commitments; not borrowings but require monitoring.
- Q4 FY2025 profit: ₹325 crore, down by 51% YoY due to payment timing, not demand weakness.

(e) Strategic Position & Ownership

- Proximity to India's largest port cluster offers strong logistical advantages.
- Government holds- 84.83% stake; April 2025 plan to divest 4.83% to increase public float while retaining control.

2. Cochin Shipyard Ltd

It is a miniratna central public sector enterprise operating under the administrative control of the Ministry of Ports, Shipping and Waterways.

- It is India's largest and most advanced shipbuilding and ship-repair company, known for delivering complex vessels ranging from aircraft carriers to next-generation commercial ships.

- It is a strategically vital public sector enterprise under the Ministry of Ports, Shipping and Waterways, playing a central role in developing India's maritime defence and commercial fleet.

- With capabilities spanning shipbuilding, ship repair, and emerging technologies like green propulsion and autonomous vessels, CSL stands at the core of India's push toward maritime self-reliance and global competitiveness.

CSL operates a distinct and balanced dual-business model, with co-equal focus on high-complexity shipbuilding and high-margin ship repair, setting it apart from other domestic yards.

1. Shipbuilding: The company possesses the capacity to construct vessels up to 110,000 Deadweight Tonnage (DWT). While a significant portion of its order book is anchored by long-term national defence projects, such as the Indigenous Aircraft Carrier (INS Vikrant), CSL has aggressively and successfully expanded into the high-tech, high-value commercial export market.
2. Ship Repair: This segment is a major, stable revenue and profit driver, with CSL having capacity to repair vessels up to 125,000 DWT. In some quarters, this division has contributed over half of the company's total revenue. CSL has recently completed a major capital expenditure cycle, commissioning a new large dry dock and a state-of-the-art International Ship Repair Facility (ISRF). This strategic investment increases its repair capacity from approximately 100 to over 160 vessels per year, positioning it as a dominant repair hub in the region. This division provides a crucial, high-margin revenue stream that balances the lumpy, milestone-based payment cycles common in new vessel construction.

A primary driver of CSL's commercial growth is its strategic pivot towards "green shipping" and high-value-add vessels for the export market. A landmark order valued at over ₹2,000 crore from French shipping giant CMA CGM for six advanced, LNG-powered container ships underscores this capability. This project, which includes technical cooperation with South Korean shipbuilder HD KSOE, facilitates critical technology transfer in green-fuelled vessel construction. Furthermore, CSL is building multiple Hybrid Service Operation Vessels (SOVs) for North Star Shipping in the UK, designed to service offshore wind farms. This positions CSL as a key global player in the energy transition supply chain.

Key Initiatives and developments

1. Human Capital Development

- Operates the Marine Engineering Training Institute (METI), directly producing the skilled workforce needed for India's maritime self-reliance.
- Builds technical expertise in marine engineering, shipbuilding, and repair — reducing dependence on foreign-trained talent.

2. Green-Tech Export Strategy

- CSL's commercial export plan focuses on the rapidly growing global market for green and hybrid vessels.
- Uses stable cash flows from defence and ship repair to fund R&D, technology absorption, and capability expansion in green maritime tech.

3. Policy Alignment

- Perfectly positioned to benefit from the Shipbuilding Financial Assistance Policy (SBFAP).
- Gains additional incentives for building vessels with green fuels such as LNG,methanol, hydrogen, or electric propulsion.

4. Contribution to India's maritime economy

- Builds advanced ships, repairs global fleets, trains manpower, and strengthens MSMEs — covering the full maritime value chain.
- Acts as a foundational pillar in India's journey toward a technologically advanced and autonomous maritime ecosystem.

Adani Ports and Logistics:

Adani Ports and Special Economic Zone Limited (APSEZ) is the largest commercial ports operator in India accounting for nearly one-fourth of the cargo movement in the country. Its presence across 13 domestic ports in seven maritime states of Gujarat, Maharashtra, Goa, Kerala, Andhra Pradesh, Tamil Nadu and Odisha presents the most widespread national footprint with deepened hinterland connectivity.

The company manages a growing portfolio of over 15 ports and terminals across six maritime states in India, with a combined cargo handling capacity of over 600 Million Metric Tonnes Per Annum (MMTPA).
APSEZ operates three logistics parks located at Patli in Haryana, Kila-Raipur in Punjab and Kishangarh in Rajasthan.Over the years, APSEZ has evolved into a provider of integrated port infrastructure services, of which the Mundra SEZ in Gujarat is a landmark validation. Spanning over 8,000 hectares, the Mundra Economic Hub offers investment options as the largest multi-product SEZ, Free Trade and Warehousing Zone (FTWZ) and Domestic Industrial Zone.
APSEZ ports are equipped to handle a diverse mix of dry bulk (like coal, minerals, and agri-products), liquid bulk (crude oil, chemicals, LPG/LNG), and containerized cargo. The company provides a full range of services including pilotage, towage, cargo handling, and warehousing.

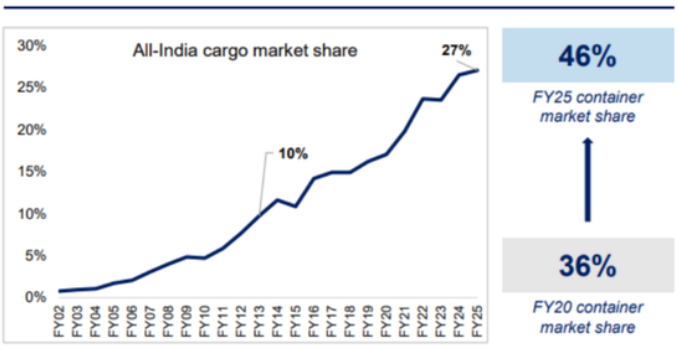


Figure: Cargo Market Share

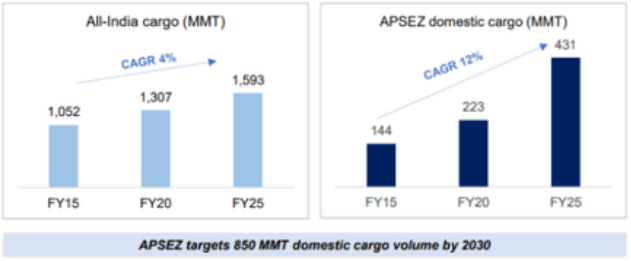


Figure: Cargo Growth (MMT)

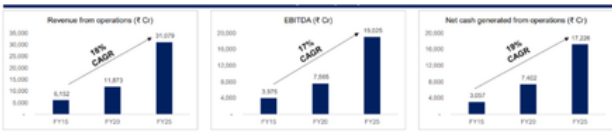


Figure: Revenue, EBITDA and Operating Cash flow

These figures can be used to measure rate of growth, determine share in overall domestic cargo to forecast future changes in metrics when considering increase in investments due to policy implementation like Marine Vision 2030.
For example, Under MV2030, % of Indian cargo transshipment handled by Indian ports is aimed to be greater than 75%. If such targets are assumed to be achieved through policy implementation, the consequential forecast of cargo handled by APSEZ can be determined using this data, for building DCFs and forecasting future financials.

Ports & Global Presence
India: 15 Ports - Total Capacity 633 MMT

West Coast (343 MMT):

- Kandla - 20 MMT
- Mundra - 264 MMT
- Dahej - 10 MMT
- Hazira - 30 MMT
- Dighi - 8 MMT
- Mormugao - 39 MMT

South Coast (152 MMT)

- Vizhinjam - 13 MMT
- Karaikal - 22 MMT
- Ennore - 12 MMT
- Kattupalli - 25 MMT
- Krishnapatnam - 75 MMT

East Coast (138 MMT)
- Gangavaram - 64 MMT
- Haldia - 50 MMT (includes under-construction berth)

International Ports (4 locations)
- Haifa, Israel
- Dar es Salaam, Tanzania
- Colombo West Terminal, Sri Lanka
- Abbot Point (NQXT), Australia

Kattupalli
- EBITDA: **₹42 Cr (FY18)** to **₹214 Cr (FY25)**
- Margin: **25% to 65%**
- New equipment + expanded yard
- Added liquid/temperature-sensitive cargo

Krishnapatnam
- EBITDA: **₹1,332 Cr (FY19)** to **₹1,864 Cr (FY25)**
- Margin: **56% to 64%**
- Added liquid berth + mechanized dry cargo
- Added sulphur, raw sugar, edible oil

Karaikal
- EBITDA: **₹209 Cr (FY23)** to **₹456 Cr (FY25)**
- Margin: **46% to 72%**
- Added Rail-Sea-Rail cargo, efficiency improvements

Marine Services:
Timeline
- **2022:** Acquired OSL
- **2023:** Incorporated TAHID
- **2024:** Acquired Astro Offshore
- **FY27 Goal: 3× Revenue Growth**

Marine Strategy
- Diversified marine fleet
- MEASA regional focus
- Tier-1 customers
- High capital efficiency

Fleet Composition (127 Vessels)
- 76 Tugs
- 19 AHTS
- 12 Flat-top barges
- 14 MPSV
- 6 Workboats

DCF Analysis and Interpretation

At the industry level, the current market Enterprise Value (₹2,85,694 Cr) is seen to be overvalued when compared to the intrinsic valuation derived from our Discounted Cash Flow Analysis for all the 8 companies (₹2,83,590 Cr). Although this overvaluation seems narrow in percentage terms(0.74%), the absolute value gap slightly exceeds ₹2,100 crores, which reflects a genuine mispricing, which is however concentrated in specific names.

The overvaluation is brought about predominantly by the defence shipbuilders - Mazagon Dock and Cochin Shipyard, where the market value reflects premiums of 128% and 251% respectively over their DCF intrinsic valuations. Investors view these companies as running a duopoly as they are the only companies building submarines and warships for the Indian Navy. As a part of the 'Make in India' policy push, people are willing to pay hefty premiums for their products. Our DCF model fails to capture this policy assisted optimism which is tied to current market premiums. ABS Marine is also overvalued, albeit due to liquidity and speculation as opposed to solid fundamentals.

On the contrary, Adani Ports, despite being the sector's top operator with 27% of India's total cargo and also nearly half its container throughput, trades at a slight discount to DCF valuation, suggesting the market is actually being conservative about its long-term earning power and is yet to price its potential in. Great Eastern Shipping and the Shipping Corporation of India are the most visibly undervalued names, trading at 31% and 58% discounts to our DCFintrinsic value respectively.

(₹ in crore)

Company	Current Market EV	DCF EV
Adani Ports	403,998.71	420,393.54
Mazagon Dock Shipbuilders	102,427.45	44,981.50
Cochin Shipyard Ltd	43,873.33	12,514.77
Great Eastern Shipping Co.	18,203.18	26,414.24
The Shipping Corp. of India	15,323.73	36,669.41
Gujarat Pipavav Port	7,529.04	8,998.69
Seamec Ltd	4,033.14	3,882.11
ABS Marine Services	615.42	490.89
INDUSTRY WEIGHTED AVERAGE	285,699.06	283,595.49

Both own valuable assets and are also generating good cash, but there is uncertainty tied to their cyclical freight rates, reflected in fluctuating price. Additionally, SCI is a state owned company.

What this valuation exercise ultimately reveals about India's maritime sector is that it is a market being priced both on sentiment and policy narrative as much as on fundamentals. The sector is caught between two very different investment rationales running in parallel. The defence and shipbuilding segment is being valued like a steady growth sector with protected demand, and the market is willing to pay a hefty premium for the security and certainly it lends. The commercial shipping and port operations segment, despite strong underlying cash flows and a gradually improving macro backdrop, Sagarmala, the Maritime Development Fund,and also backed by growing EXIM trade volumes is being treated with suspicion due to its cyclical business.

The bottom line is that the Indian maritime sector as a whole is not all overvalued or undervalued but it is unevenly priced. The aggregate overvaluation at the portfolio level is a function of heavy market cap concentration in the defence names rather than an industry wide bubble. For the sector to be priced more rationally, commercial shippers and port operators would require the market to stop punishing every instance of freight rate volatility and recognise the structural demand that India's trade growth and infrastructure investment genuinely support. Until that happens, the sector will continue to present a bifurcated picture with defence trading at premiums, and commercial maritime assets priced with pessimism.

DCF Company Analysis

REFERENCES

Bansal, A. K. (2012). *India's Maritime Heritage*. INDIA'S MARITIME HERITAGE

Maritime Economics by Martin Stopford. https://logistics.nankai.edu.cn/_upload/article/50/93/1cf2097840e8af90af4b19979773/9ce547df-a3e1-493c-a4a3-0ebbfe0669b9.pdf

"Seafaring in Ancient India". Hindu Wisdom - Seafaring in Ancient India

Sridharan, R. A. K. (2017). *A maritime history of India*. Publications Division Ministry of Information & Broadcasting. https://books.google.co.in/books?id=bvomDwAAQBAJ&lpg=PP1&pg=PP1#v=onepage&q&f=false

Ray, H. P. (2011). Writings on the maritime history of ancient India. *Approaches to history: Essays in Indian historiography*, 27-54. Writings_on_the_Maritime_History_of_Anci.pdf

Al Salimi, A., & Staples, E. (Eds.). (2016). *A MAritiMe History*. Georg Olms Verlag. https://www.researchgate.net/profile/Beatrice-Nicolini/publication/264789641_Notes_on_the_Baloch_presence_along_the_Swahili_coast_during_the_nineteenth_century/links/6693dcef3e0edb1e0fe4a9c7/Notes-on-the-Baloch-presence-along-the-Swahili-coast-during-the-nineteenth-century.pdf

Chaturvedi, D. G. (2016). Development of Trade Routes and Strategies in Ancient India. *Trade Negotiations Under WTO: Issues Before Developing World*, 110. https://www.researchgate.net/profile/Sanjeev-Kumar-227/publication/369260505_Trade_Negotiation_under_WTO_Issues_Before_Developing_World/links/64795de4d702370600caf83c/Trade-Negotiation-under-WTO-Issues-Before-Developing-World.pdf#page=110

Singh, R. Trade Routes and Cultural Exchange in Ancient India: From Silk Road to Indian Ocean. https://shodhpith.com/archives/2025/mar-apr/papers/SIMRJ12MA25006.pdf

Chavan, P. V. The Influence of Ancient Indian Trade Routes: Silk Road, Spice Trade, and Cultural Exchange. https://irjhis.com/paper/IRJHIS2508010.pdf

Bariyar, A. K. India's Maritime Diplomacy: Emergent Challenges and Opportunities. India's Maritime Diplomacy: Emergent Challenges and Opportunities

Narasimha, P. T., Jena, P. R., & Majhi, R. (2021). Impact of COVID-19 on the Indian seaport transportation and maritime supply chain. *Transport Policy*, *110*, 191-203.

Alamoush, A. S., Ballini, F., & Ölçer, A. I. (2022). Ports, maritime transport, and industry: The immediate impact of COVID-19 and the way forward. *Maritime Technology and Research*, *4*(1), 250092-250092.

Bandyopadhyay, A., & Bhatnagar, S. (2023). Impact of COVID-19 on ports, multimodal logistics and transport sector in India: Responses and policy imperatives. *Transport Policy*, *130*, 15-25.

Yazir, D., Şahin, B., Yip, T. L., & Tseng, P. (2020). Effects of COVID-19 on maritime industry: a review. International Maritime Health, 71(4), 253–264.

Gupta, A. D. (2024). *Merchants of maritime India, 1500-1800*. Routledge.

Thapar, B. K. (1992). India's place on ancient trade routes. *Senri ethnological studies*, *32*, 117-125.

UNCTAD Review of Maritime Transport Reports (2015-25) https://unctad.org/publications-search?f%5B0%5D=product%3A393

Union of Greek Shipowners. (2024/25). Annual report 2024/25. https://www.ugs.gr/media/14143/ugs_annual_report_20242025_eng_digital_.pdf

Martinis, D., Koulouridi, E., Pacca, M., Chalofti, A., & Zampelas, A. (2024, July 30). Greek shipping: Success factors and opportunities. McKinsey & Company. https://www.mckinsey.com/industries/logistics/our-insights/greek-shipping-success-factors-and-opportunities

EY. (n.d.). Greece as a global maritime capital: The shipping industry in Greece [Brochure]. EY. https://www.ey.com/content/dam/ey-unified-site/ey-com/en-gr/industries/shipping/documents/shipping_brochure_en_short.pdf

Galanopoulos, R. (2025, January 23): Top 10 shipowning nations by total asset value for 2025. Veson Nautical. https://veson.com/blog/top-10-shipowning-nations-by-total-asset-value-for-2025

DCF Company Analysis

CONTRIBUTORS

Research and Design Team

Kanak Aggarwal
Krish Raj
Rudra Verma
Divyae Shah
Devansh Sharma
Ritwik Jaiswal
Maitreyi Balasubramanian
Harsh Raj

Directors

Shaurya Dalan
Vaanchhit Agarwal