



TEXAS A&M UNIVERSITY  
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# INTRODUCTION TO THE MARITIME INDUSTRY

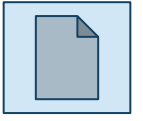
## 5. Carriers and Shipowners



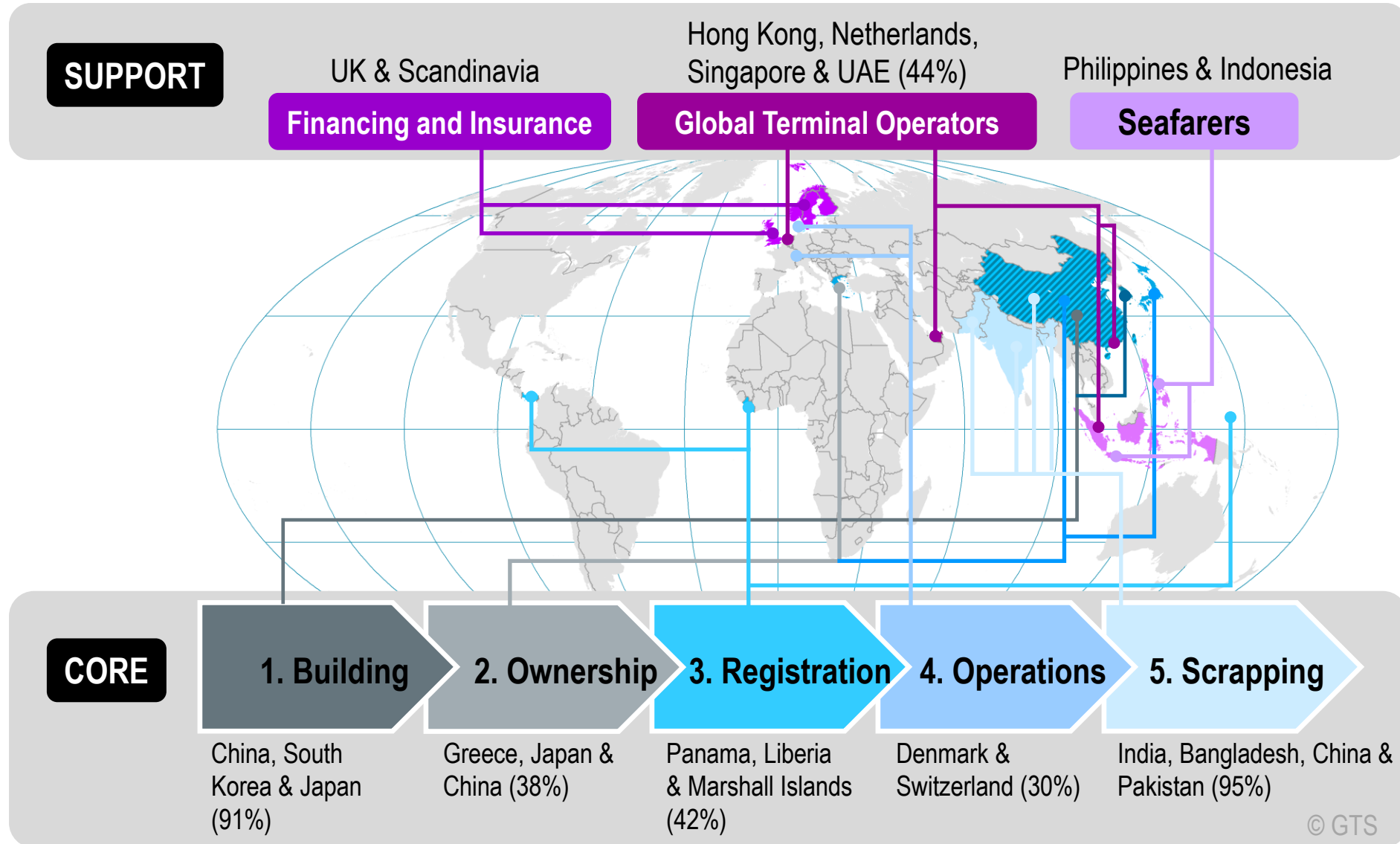
MARA 205

Professor: Dr. Jean-Paul Rodrigue

# The Maritime Transport Life Cycle and Main National Actors



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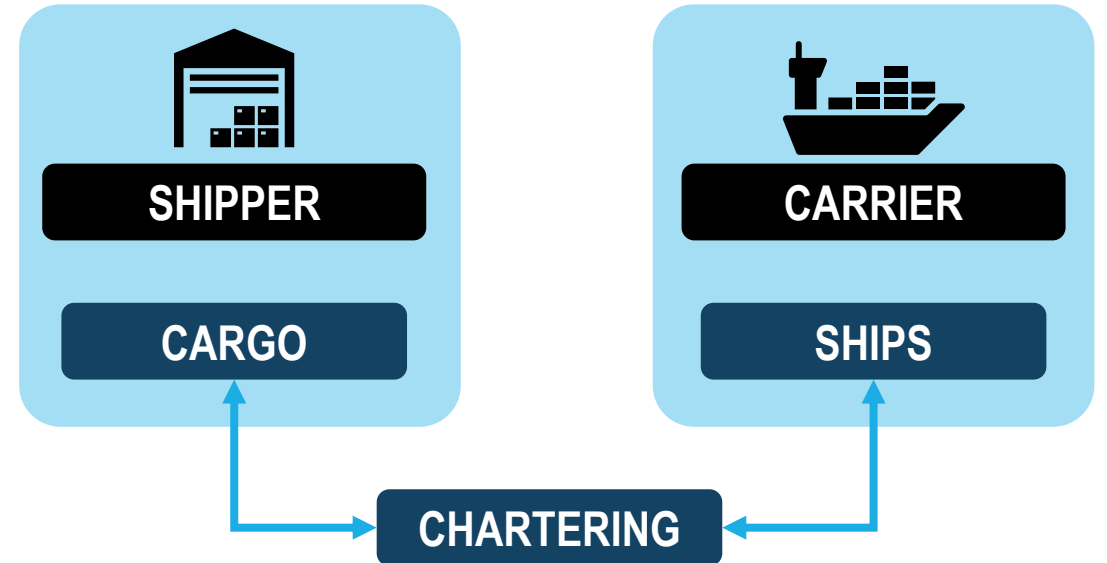
## INTRODUCTION TO THE MARITIME INDUSTRY



# A. The Shipping Business

# Carriers or Shippers?

- Shipper
  - Usually own the cargo (manufacturer, retailer, wholesaler).
  - Can opt to transport on its own account (industrial carrier).
  - Most ask a third party (3PL, freight forwarder to act on their behalf).
- Carrier
  - Transport cargo on behalf of shippers (shipping).
  - Rarely, if ever, owns cargo.
- Chartering
  - Renting ships or cargo space (particularly for containerships) so that the shipper is able to use a carrier.



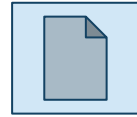
# Function of Shipping

- Function of shipping
  - The conveyance of goods from where their utility is low to a place where it is higher.
  - Arbitrage of comparative advantages (low costs to higher costs).
- Cargo markets
  - Raw materials and energy conveyed in bulk cargo shipments or containers.
  - Components and parts for assembly at a manufacturing plant.
  - Equipment for on-site capital projects like a power plant or a wind farm.
  - Vehicles for transportation, construction, mining and farming.
  - Consumer goods shipped in containers.

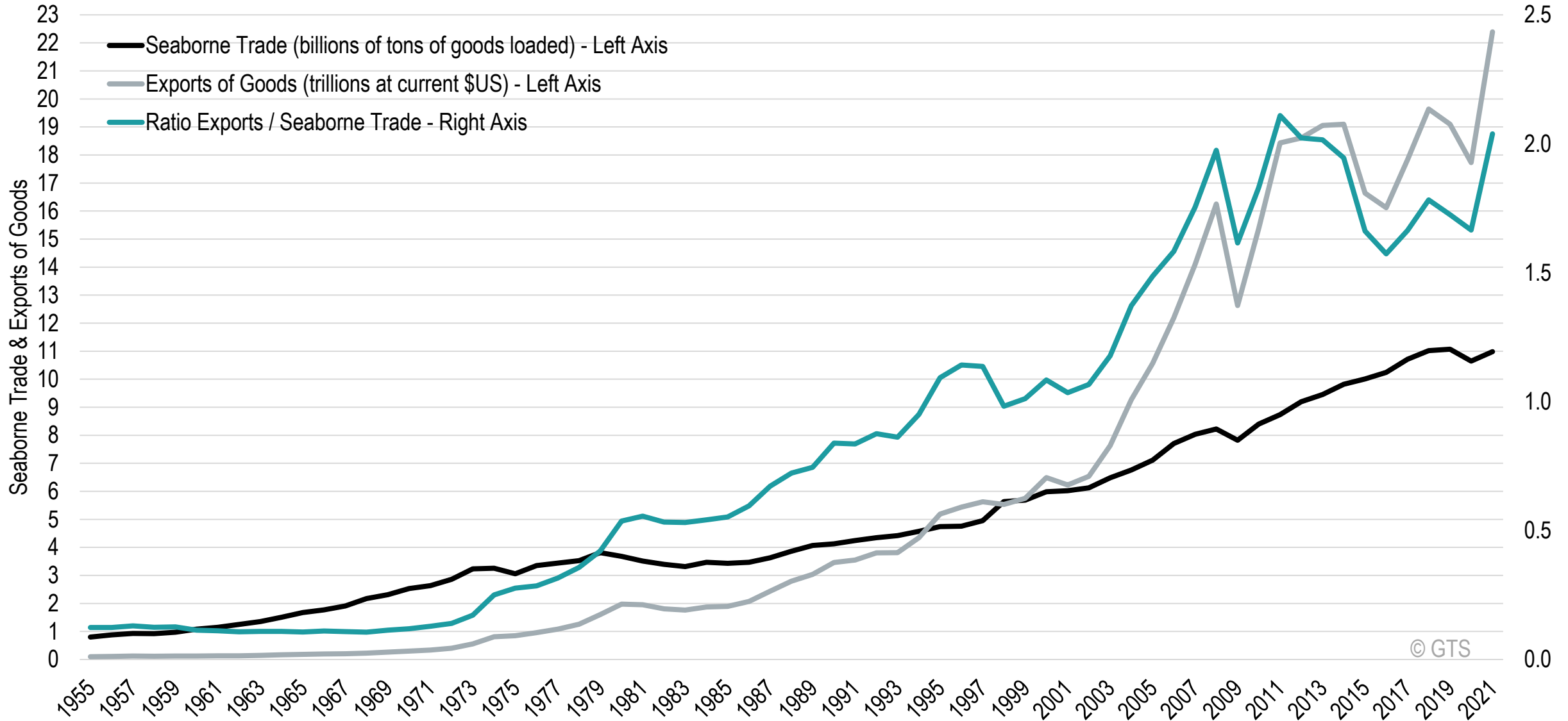
# Choice of Transport Mode

- Shippers are usually choosing the transport mode/sequence of modes
  - International shipping almost always involves a maritime transport leg.
  - Can become a complex logistics chain requiring careful organization.
- Factors
  - Reliability
  - Frequency
  - Cost
  - Transit time
  - Capital tied up in transport (inventory carrying cost)
  - Quality of service
  - Packaging
  - Import Duty
  - Insurance

# International Seaborne Trade and Exports of Goods, 1955-2021



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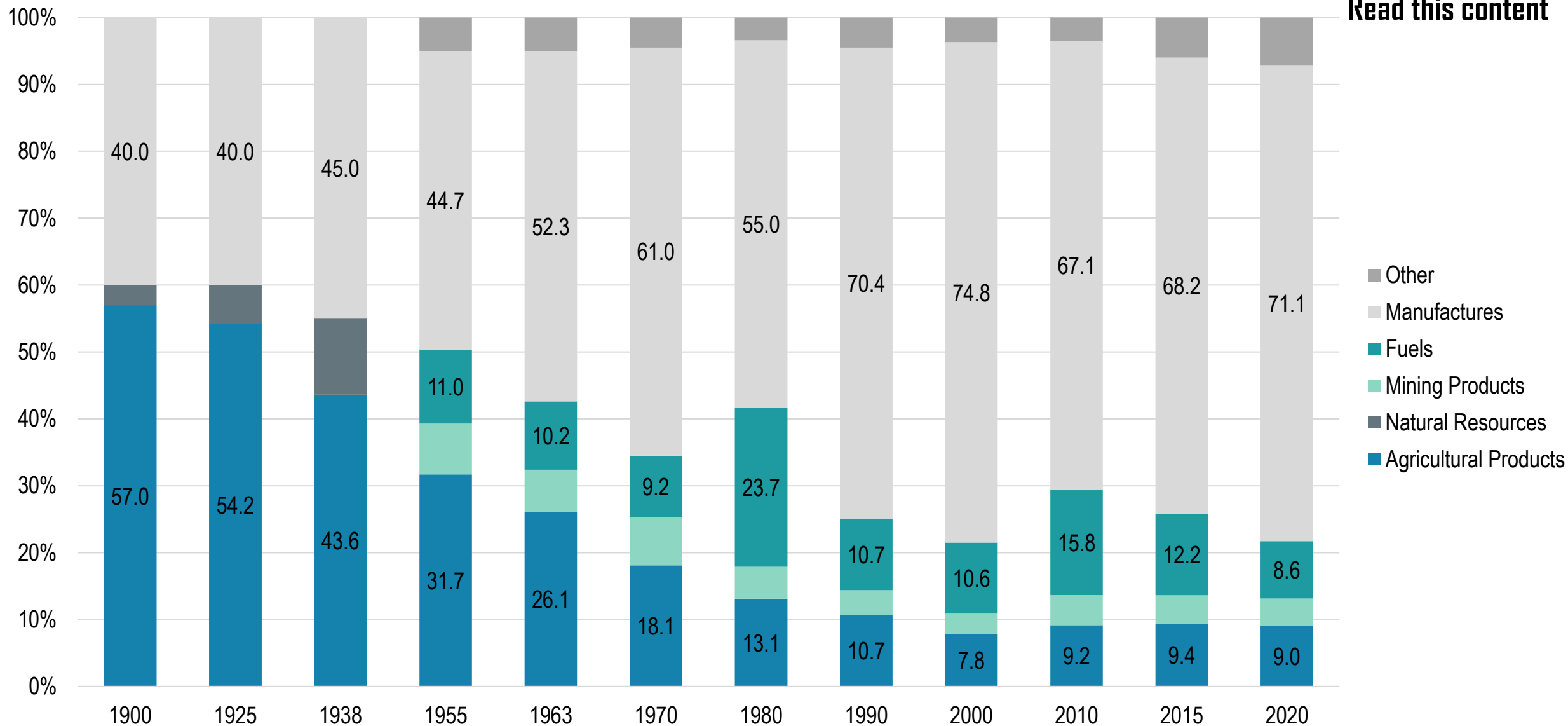


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# Share of Product Groups in World Merchandise Trade, 1900-2020



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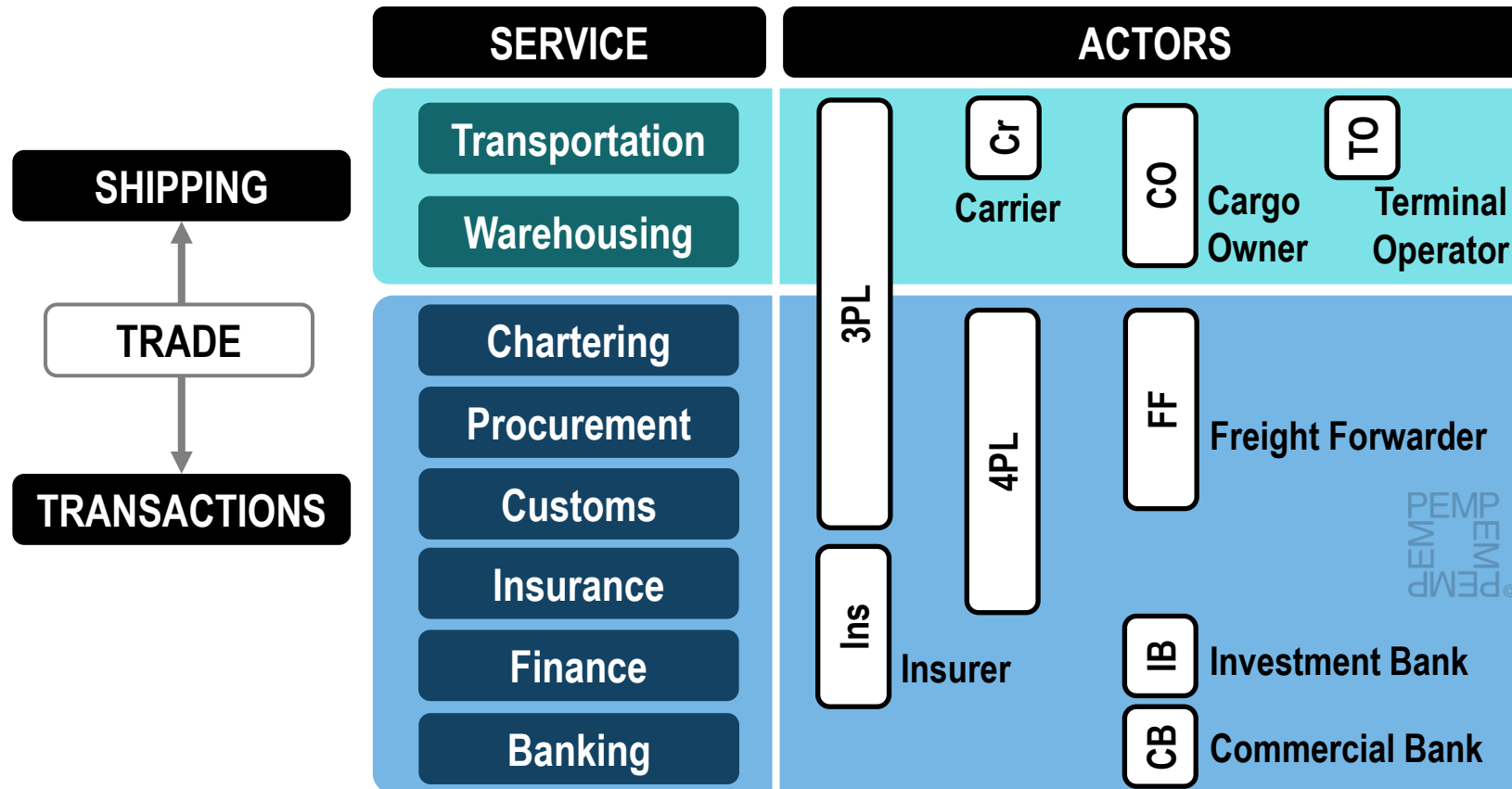




# Services Supporting The Shipping Business



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# Shipping Business

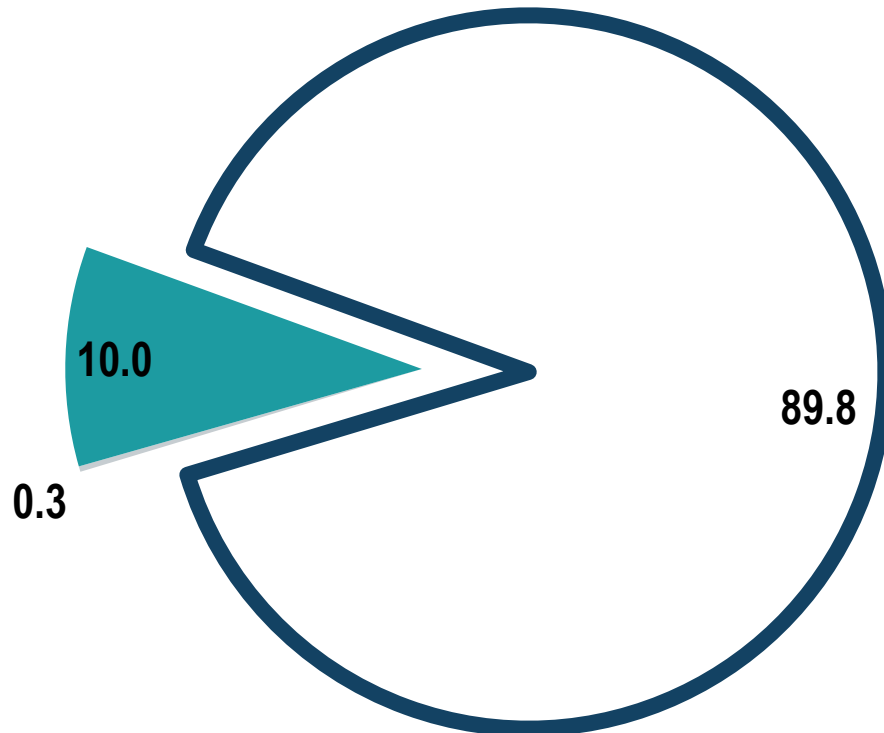
- Shipping Industry
  - International business with management and operations.
  - Shipping has become more competitive and more complex.
  - Over 90% of world trade in volume terms is conveyed by sea.
- Segments of the industry
  - Bulk shipping
    - Dry bulk and liquid bulk.
  - Tramp shipping
  - Liner shipping (containers)
  - Specialized shipping
  - Passenger shipping
    - Ferries and cruises.

# Modal Shares of World Trade by Volume and Value, 2008



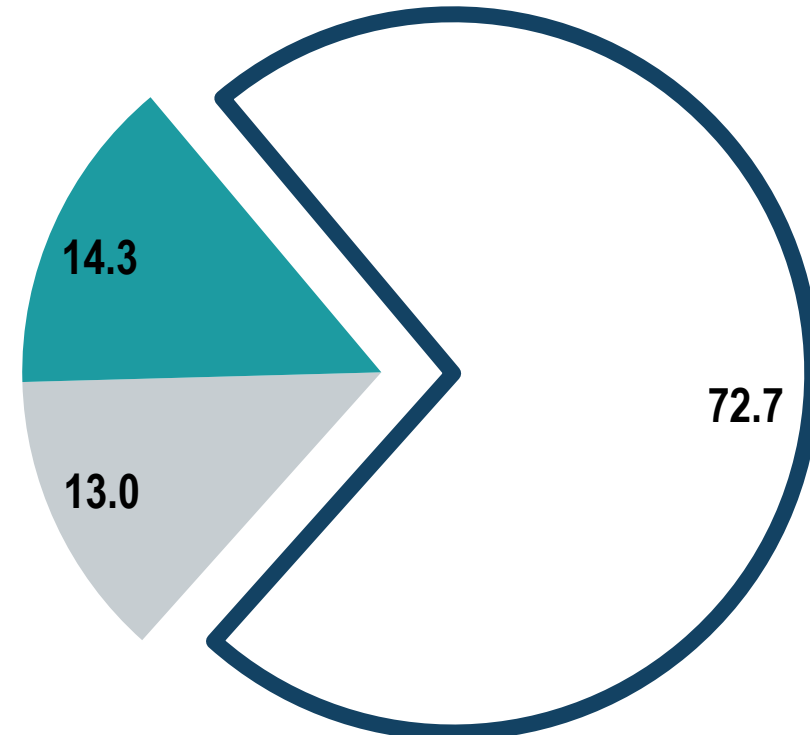
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## Volume of World Trade



■ Seaborne ■ Airborne ■ Overland

## Value of World Trade



■ Seaborne ■ Airborne ■ Overland

# Selected Changes in Maritime Shipping, 1980-2020

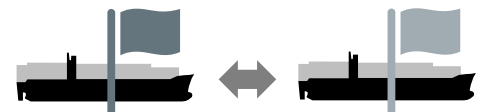


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## Ratios



Container / General cargo



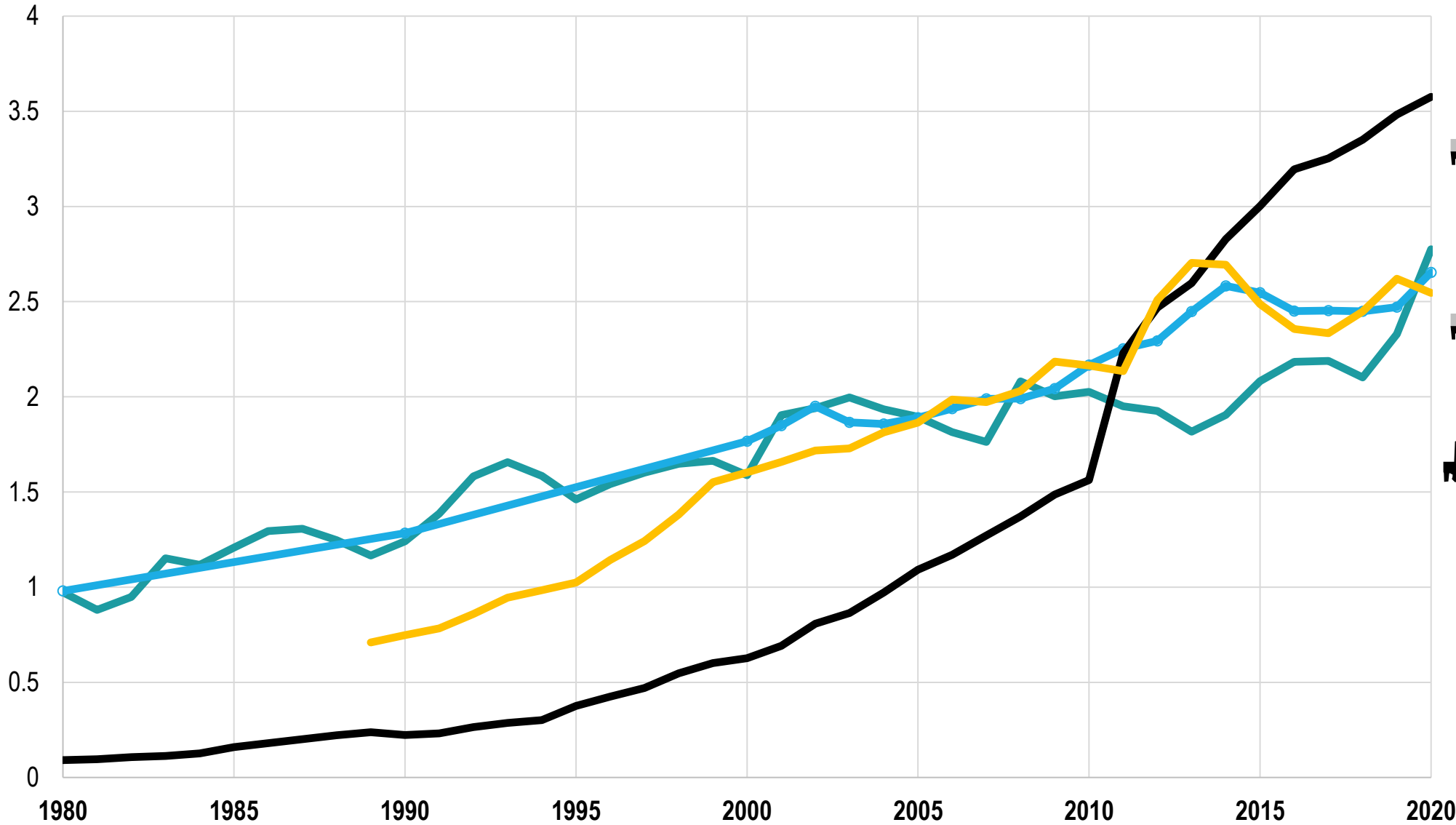
Foreign / National flag



Dry / Liquid cargo



Transportation / Inventory

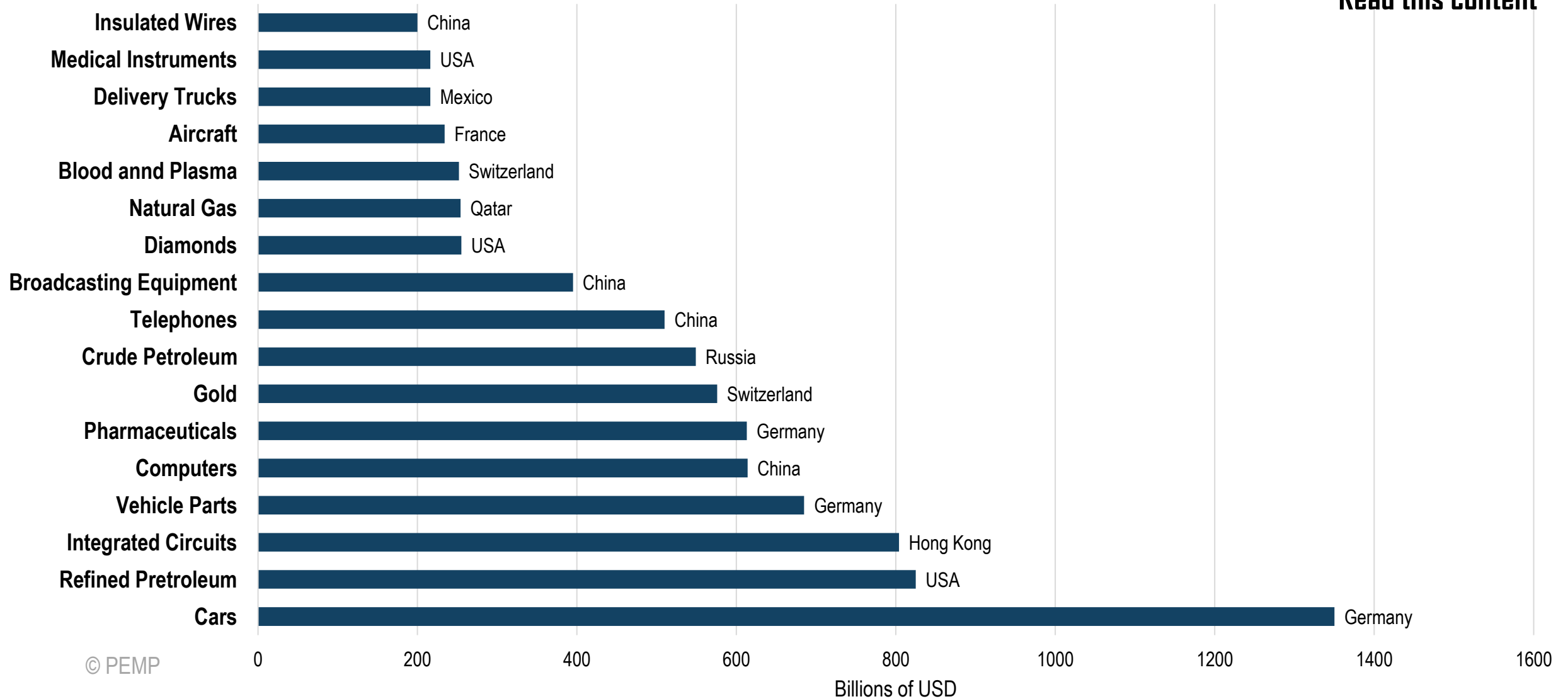


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# World's Most Traded Goods and Lead Exporter, 2016

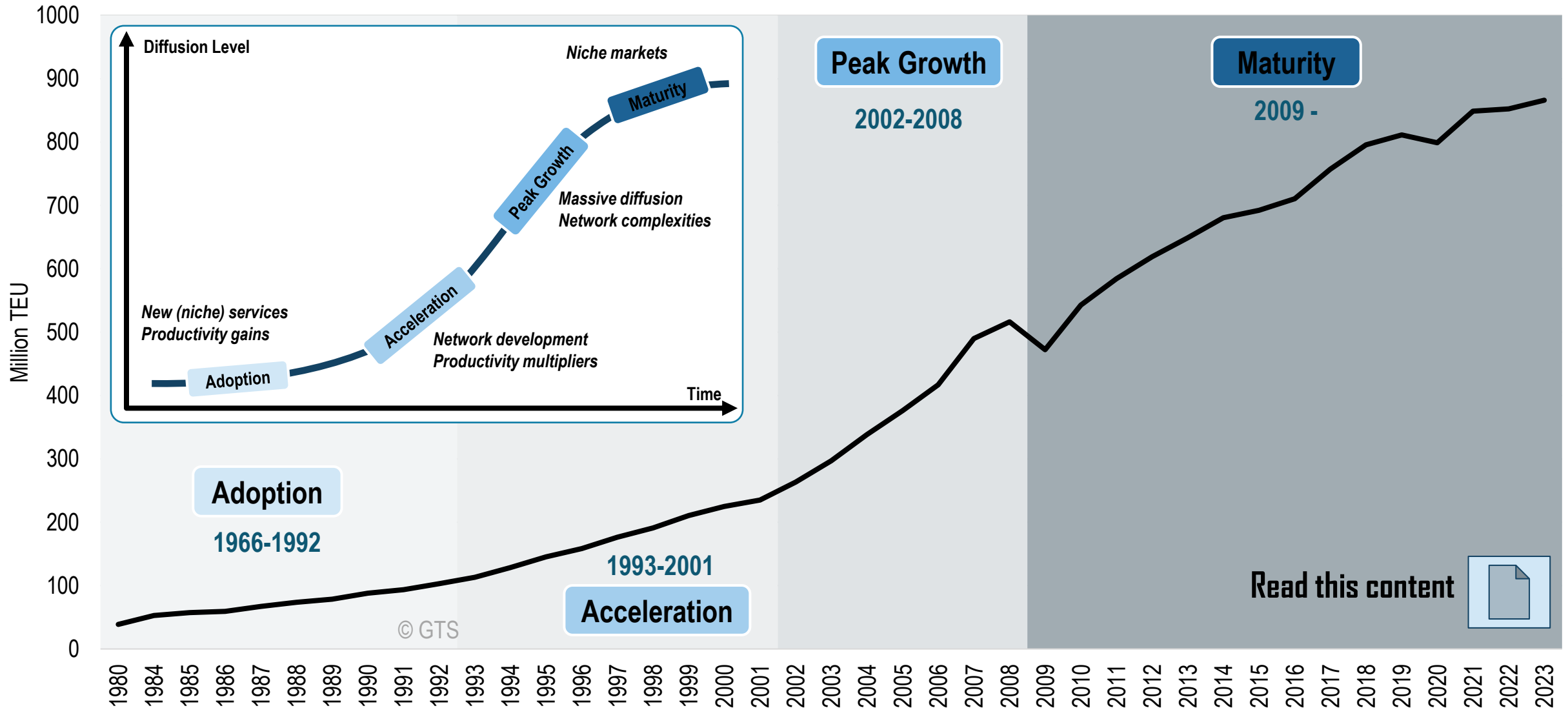


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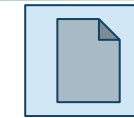
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# Containerization as a Diffusion Cycle: World Container Traffic (1980-2023)



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# Containerization Growth Factors



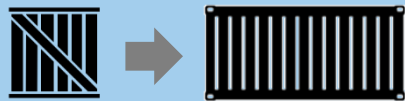
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## FACTOR

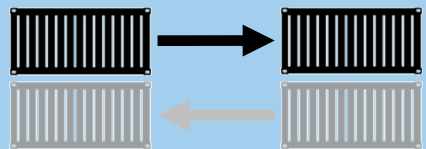
### Derived



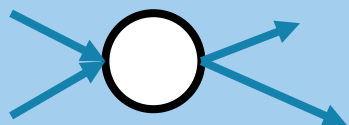
### Substitution



### Incidental



### Induced



## Volume Growth

- Economic and income growth
- Outsourcing and offshoring
- Complex supply chains

- Capture of bulk and break-bulk markets
- New niches (commodities and cold chain)

- Trade imbalances
- Repositioning of empty containers

- Transshipment (hubbing, relay and intersection)

## Volume Decline

- Economic recessions
- Trade protectionism
- Automation

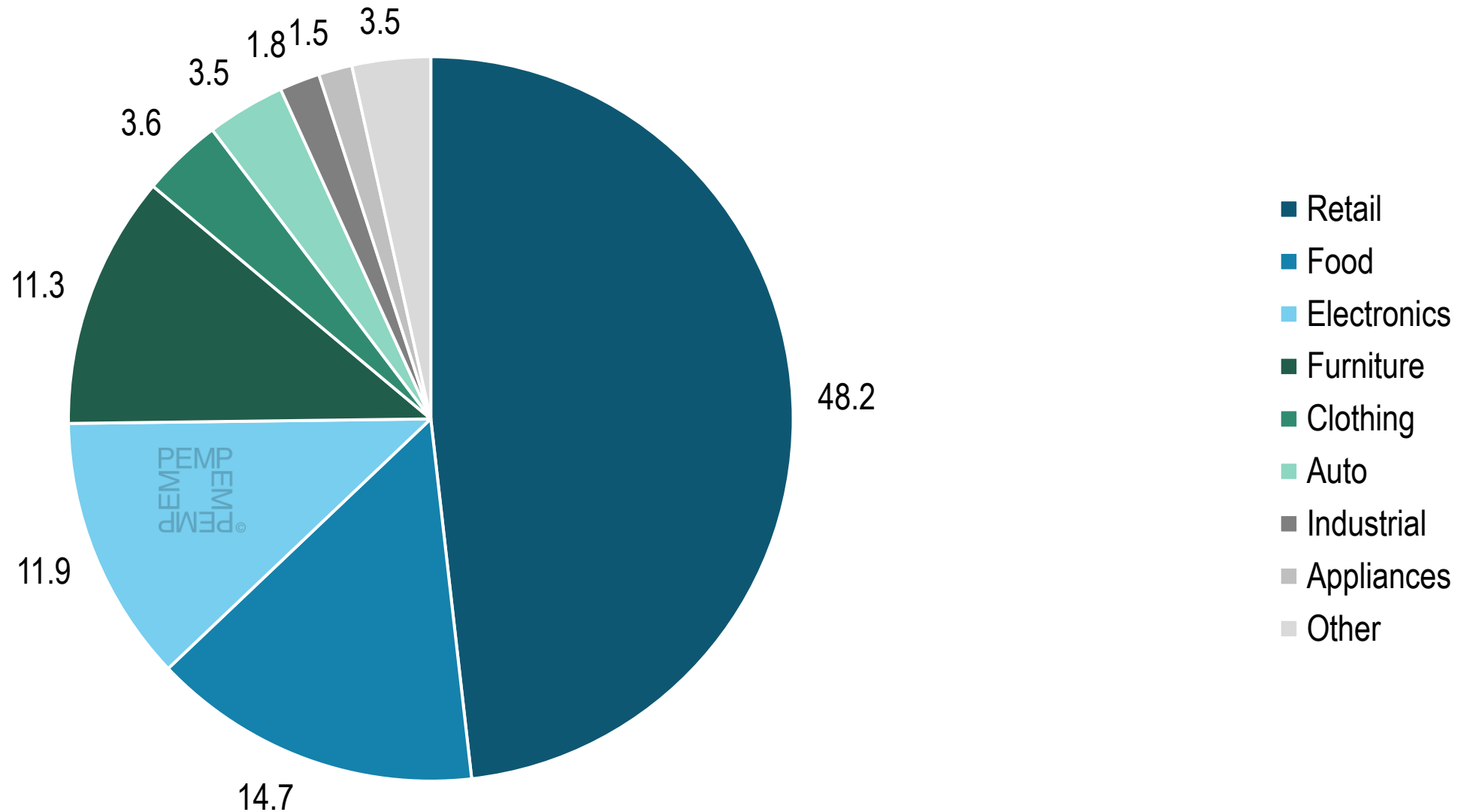
- Peak substitution
- Composition of container fleet

- Trade protectionism
- Automation

- Changes in shipping networks (more direct services)

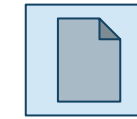
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# Container Imports by Sector, 2021 (in % of TEU)

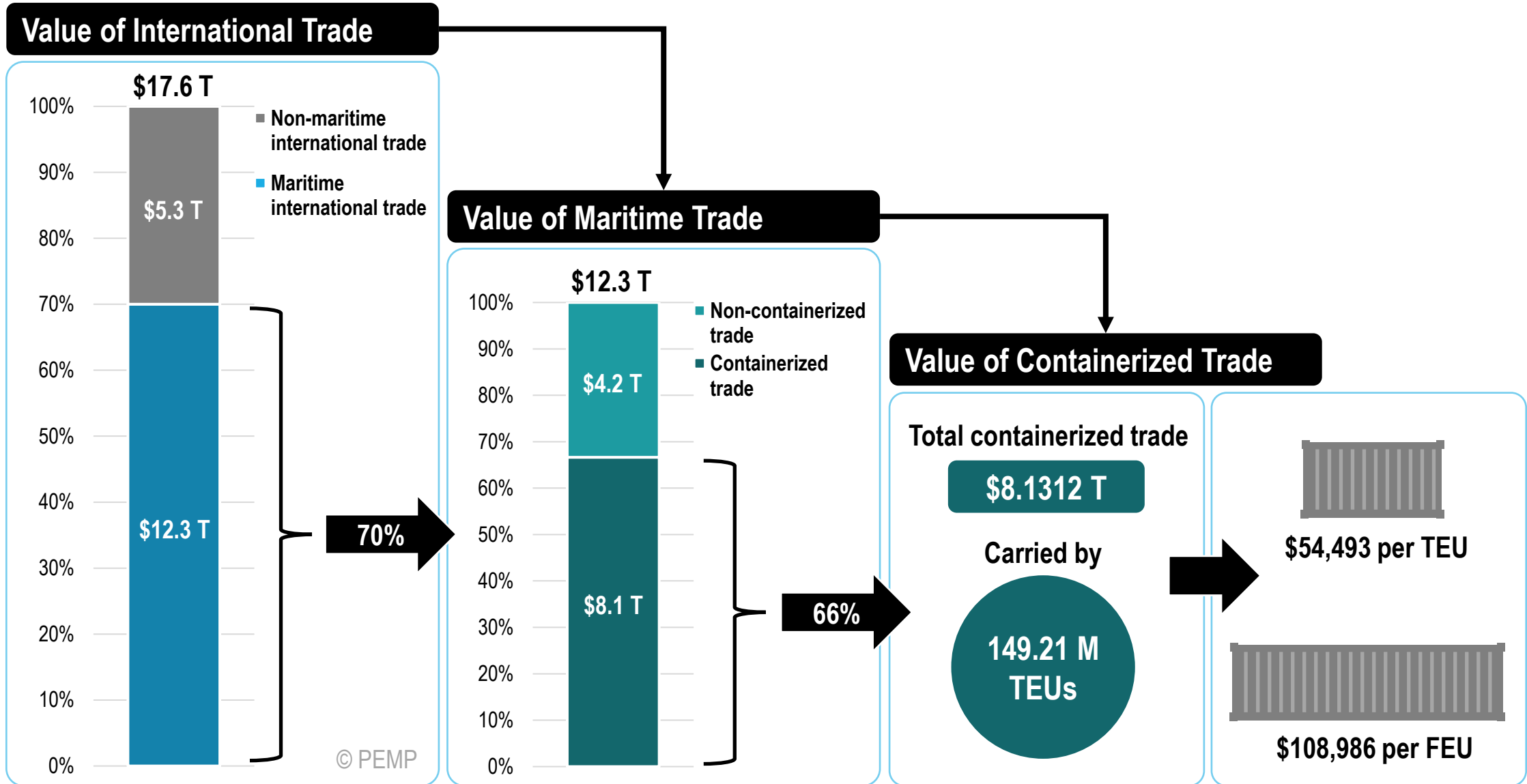




# Value of Containerized Trade, 2020

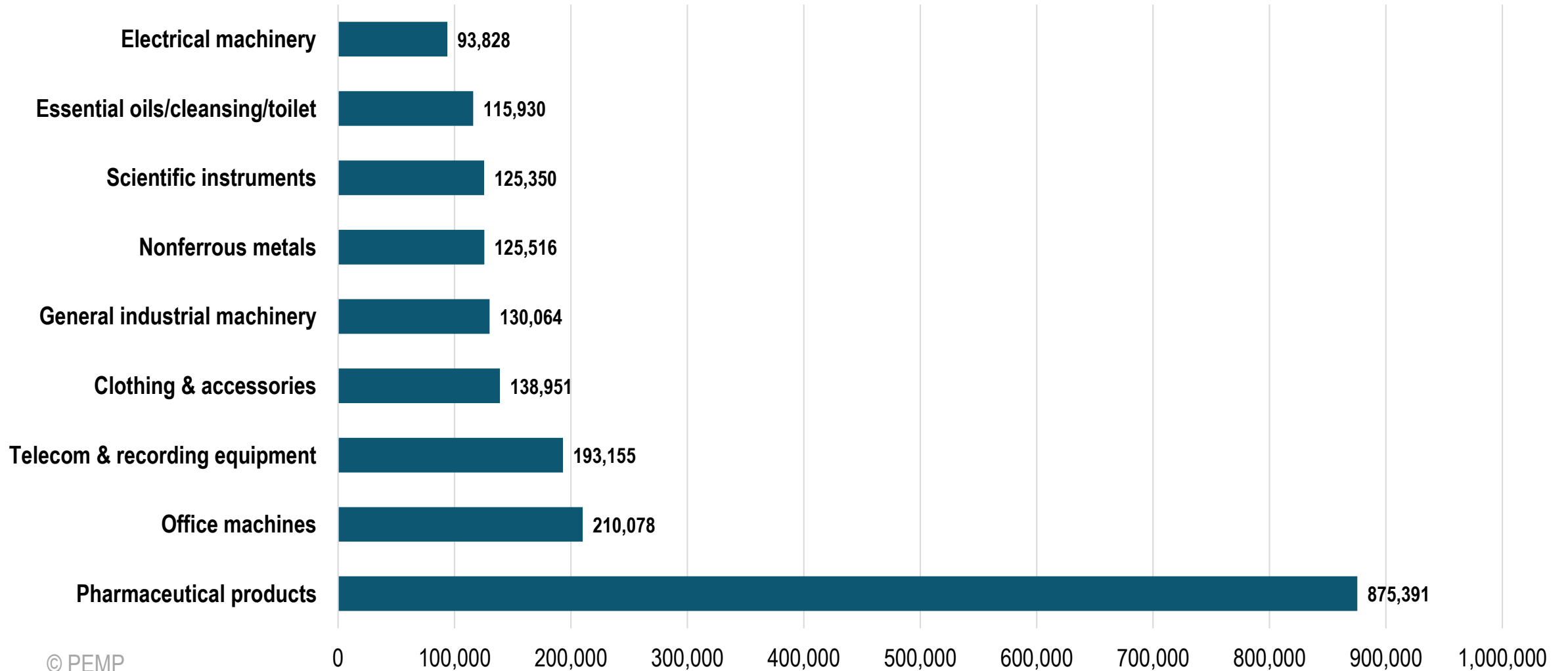


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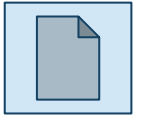


# Most Valuable Goods Carried in Containers

USD per TEU (SITC)

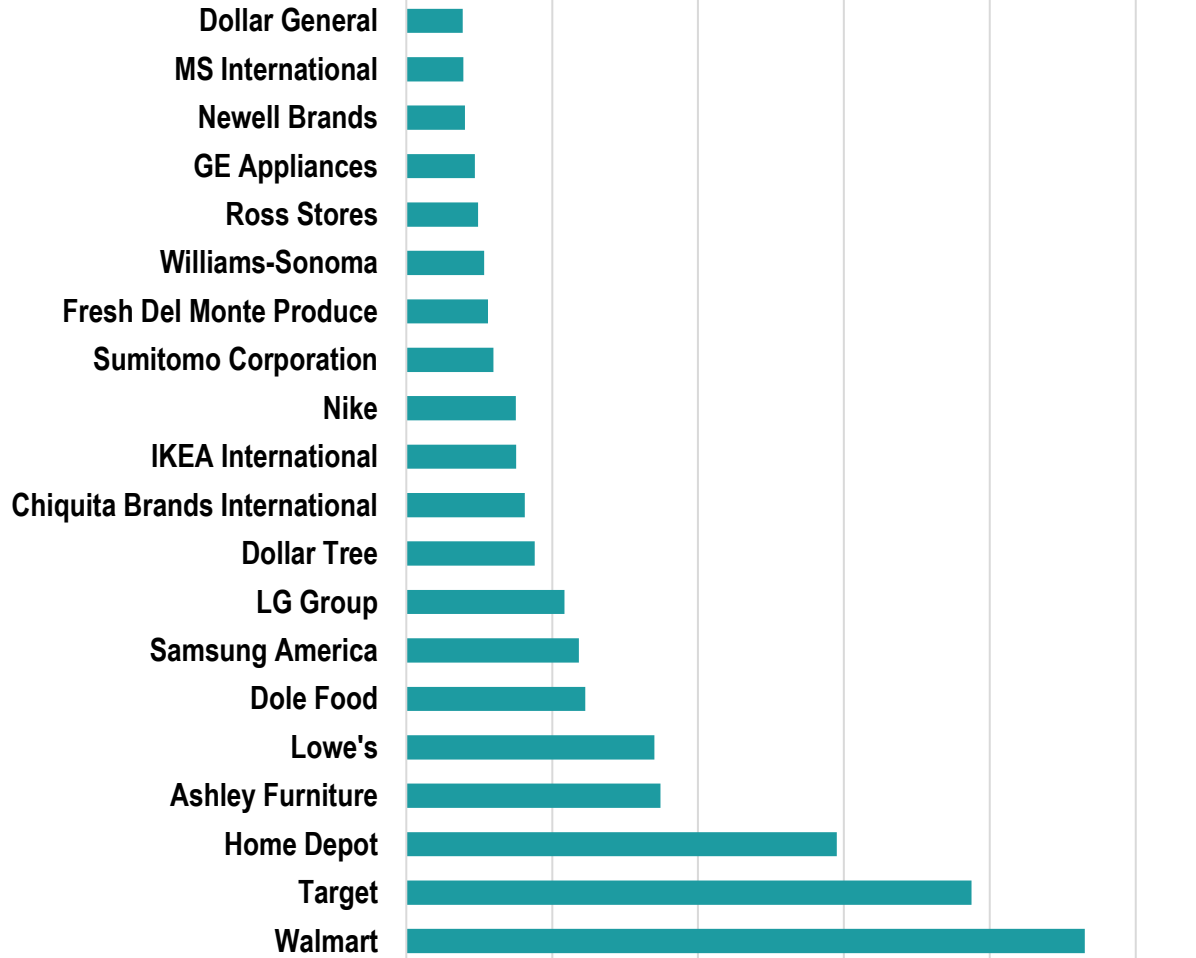


# American Foreign Trade by Maritime Containers, 2021 (in TEUs)

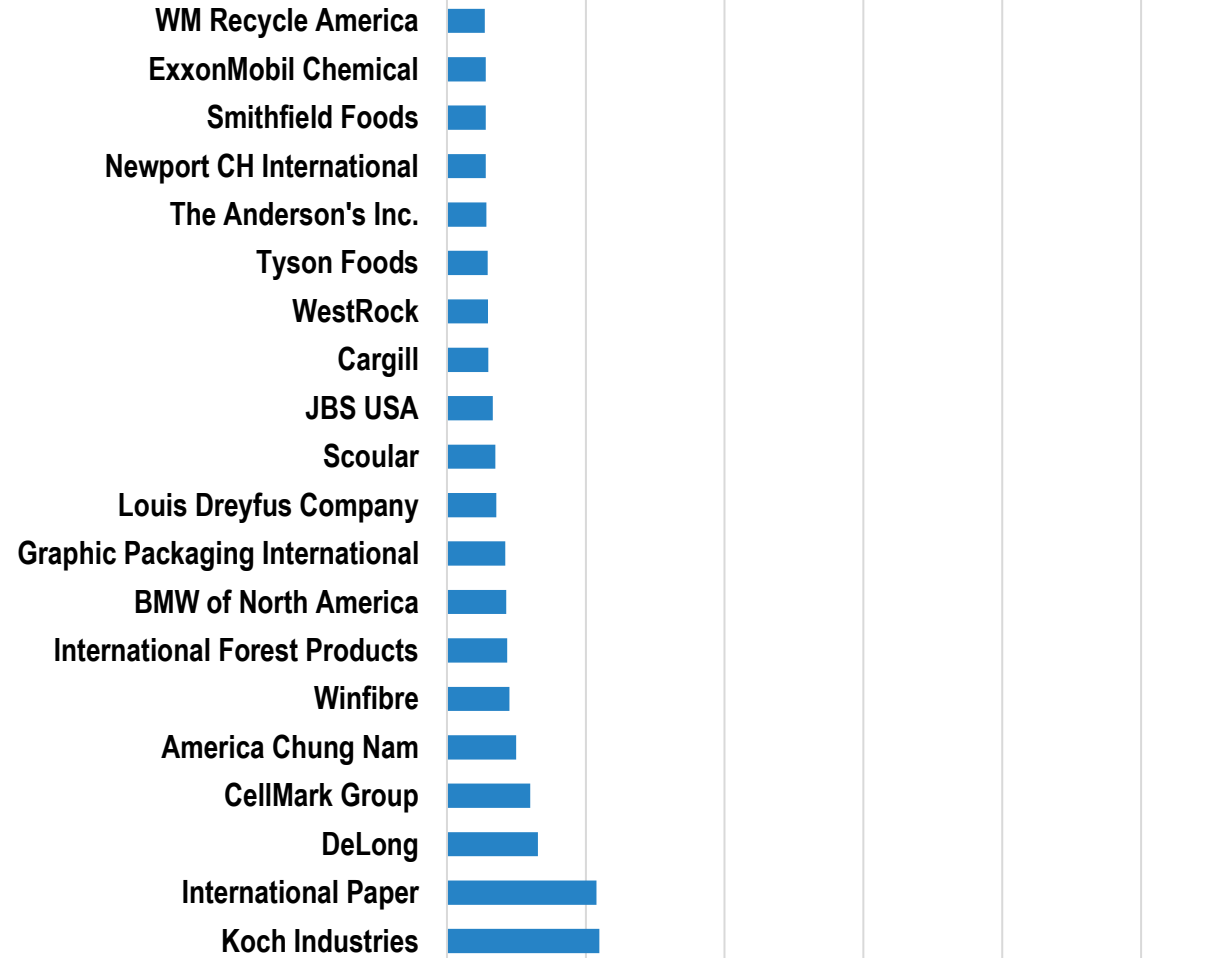


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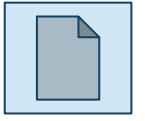
## Importers



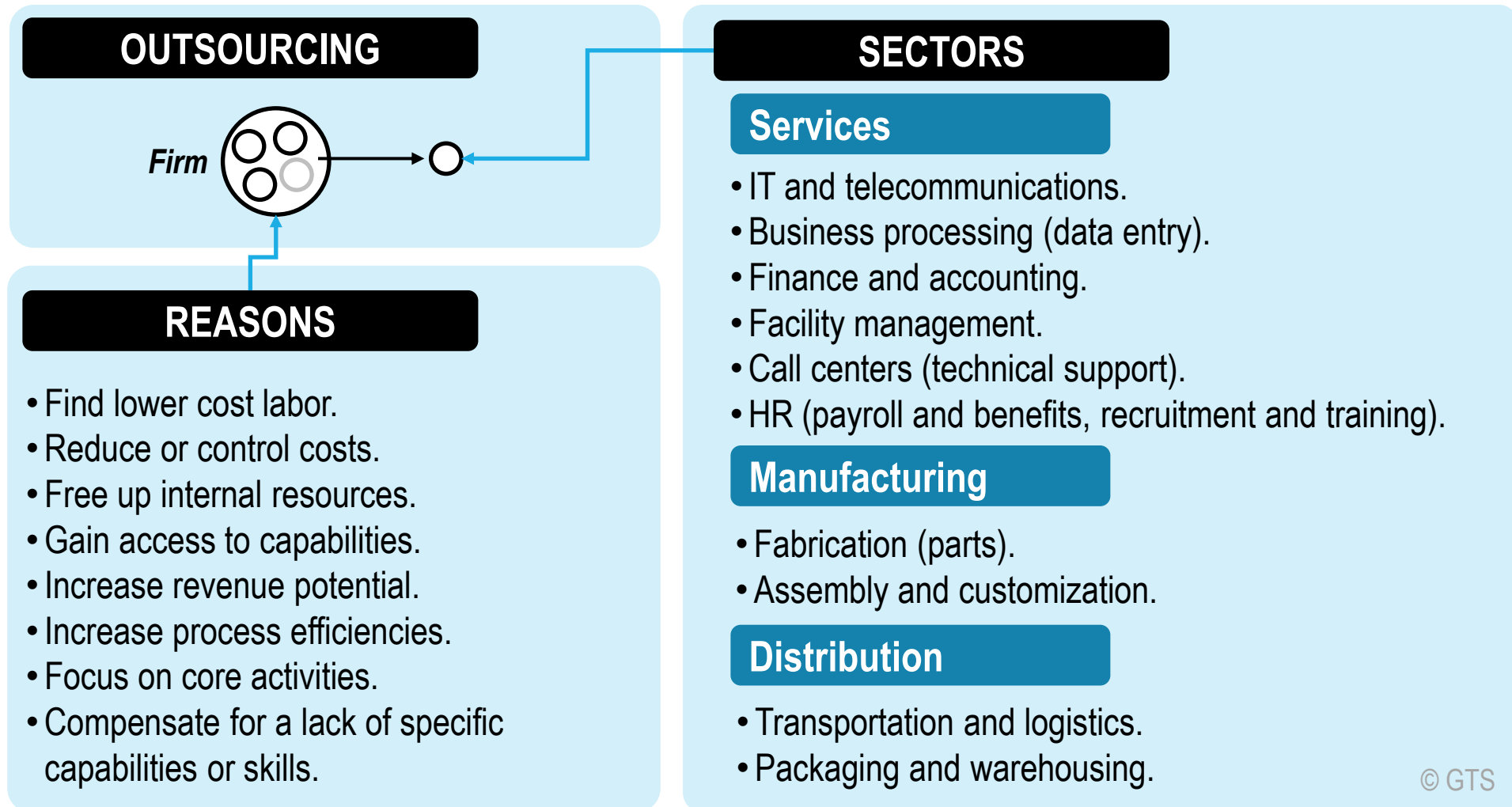
## Exporters



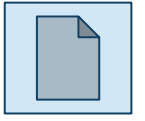
# Rationale for Outsourcing



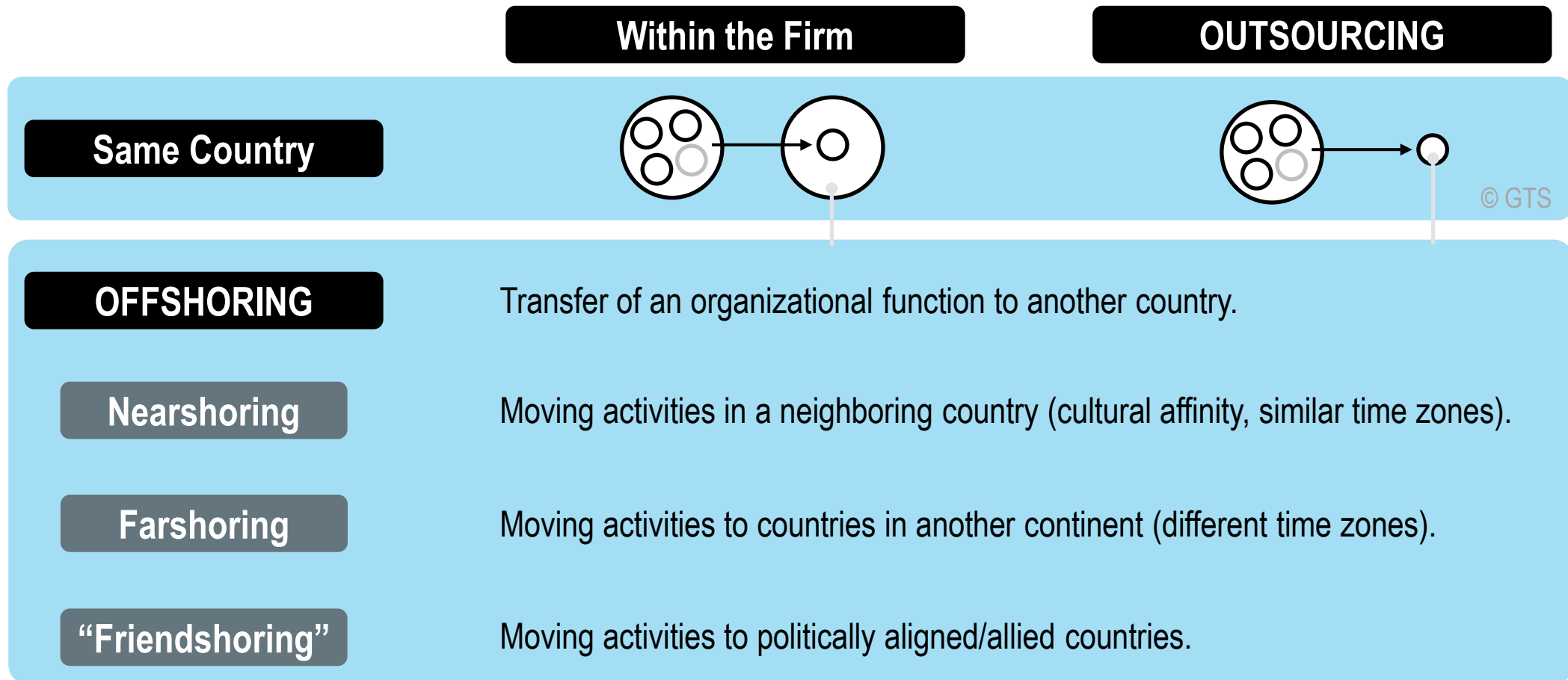
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# Offshoring, Nearshoring and Farshoring



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## INTRODUCTION TO THE MARITIME INDUSTRY



## B. Carriers

# Carriers: A Definition

- Carrier
  - A transport company moving goods on behalf of its customers.
- Organization consisting of two basic parts
  - The mobile assets: vessels.
  - The fixed assets: mainly office space.
- Coordinate the use of these assets
  - Purchasing or leasing ships.
  - Interact with shipowners.
  - Interact with charterers and freight forwarders.

# Types of Carriers

- Cargo market carriers
  - Specialize in specific segments such as tankers, containers, and bulk.
  - Some carriers may have assets in several cargo segments (e.g. dry and tanker).
- Main carrier markets
  - Dry bulk carriers.
  - Liquid bulk carriers.
  - Natural gas carriers.
  - Breakbulk carriers.
  - Vehicle carriers (RORO).
  - Container shipping lines.



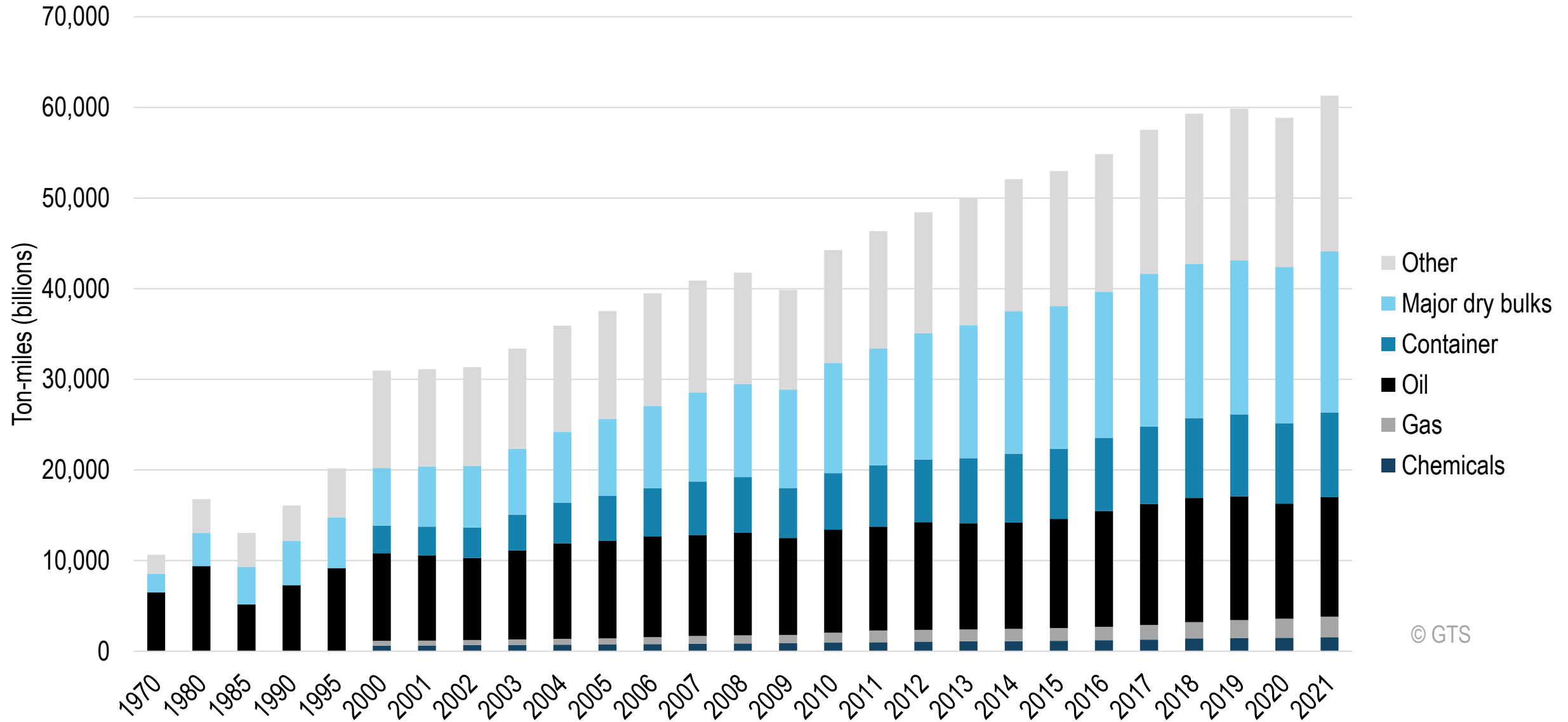
# Types of Carriers

- Industrial carriers
  - Part (owned) of a large industrial organization.
  - Move cargo solely on their behalf, available capacity and avoid shipping cycles.
  - Have become less common.
  - Large mining and steel companies, heavy equipment producers, fruit conglomerates.
- Non-Vessel-Operating Common Carriers (NVOCC)
  - Freight forwarders that do not own or operate ships.
  - Mostly for container shipping.
  - Operations:
    - Lease and buy space in ships.
    - Sell this space to customers, hoping to provide arbitrage between supply and demand.
    - Can consolidate shipments into container loads or cargo loads.

# “Banana Ship” Dole Honduras



# World Seaborne Trade by Cargo Type, 1970-2021



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# Types of Maritime Services

- Tramp Shipping
  - Analogy to tramps (vagabonds).
  - Began in the 1850s with the first steamships.
  - Routing that varies each voyage.
  - No fixed schedule.
  - Shifting cargoes; looking for cargo where it can be found.
  - Constant effort by shipowners to find cargoes; rely on a network of shipbrokers.
  - Usually geared ships not depending on shore cranes (to expand options).
  - Smaller multipurpose ships, usually Handy (20,000 to 25,000 DWT) to Handimax (30,000 to 50,000 DWT).
  - Can operate in ports with shallow drafts.

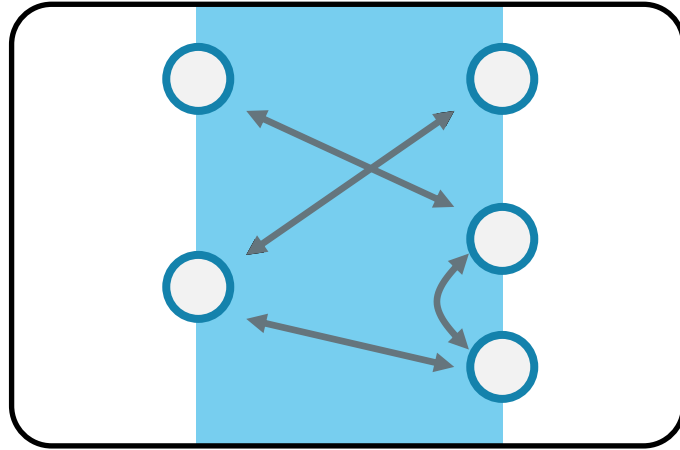
# Tramp Ship at the Domino Sugar Factory, Baltimore



# Types of Maritime Services

- Liner shipping
  - Originates from scheduled transoceanic steamship services in the 19<sup>th</sup> century.
  - Passenger vessels also transporting cargo.
  - Vessels are on a posted timetable (weekly call, every Tuesday, etc.).
  - Between two ports or several ports.
  - Mainly through container shipping.
  - Effective when there are stable market conditions.

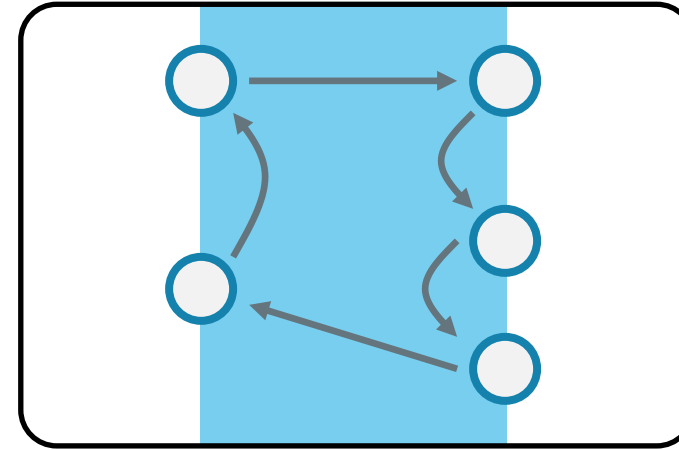
# Types of Maritime Services



## TRAMP

- Does not operate on a regular schedule.
- Available to be chartered.
- Point to point services.
- Empty backhauls.
- Common for bulk freight shipping.

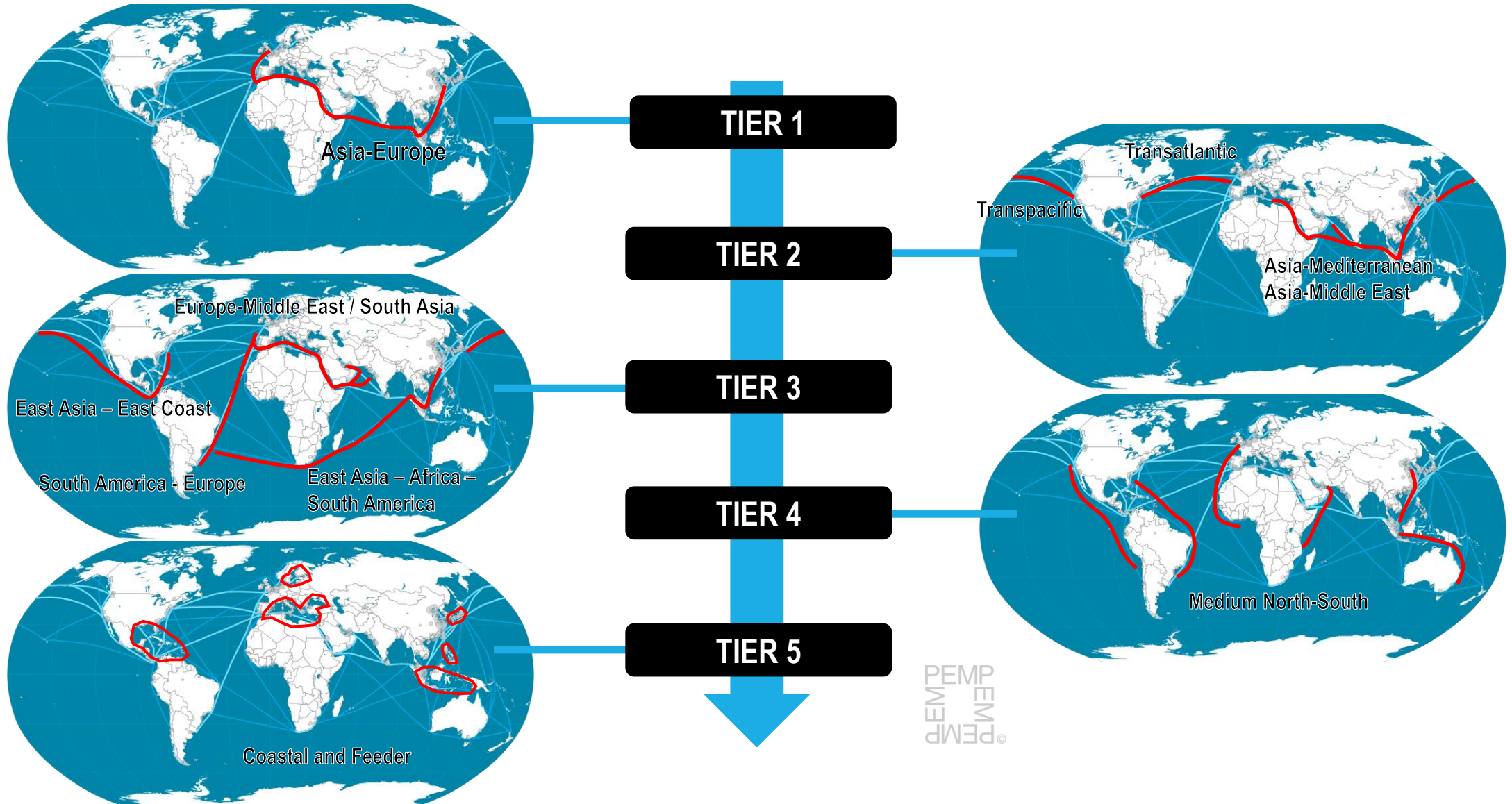
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## LINER

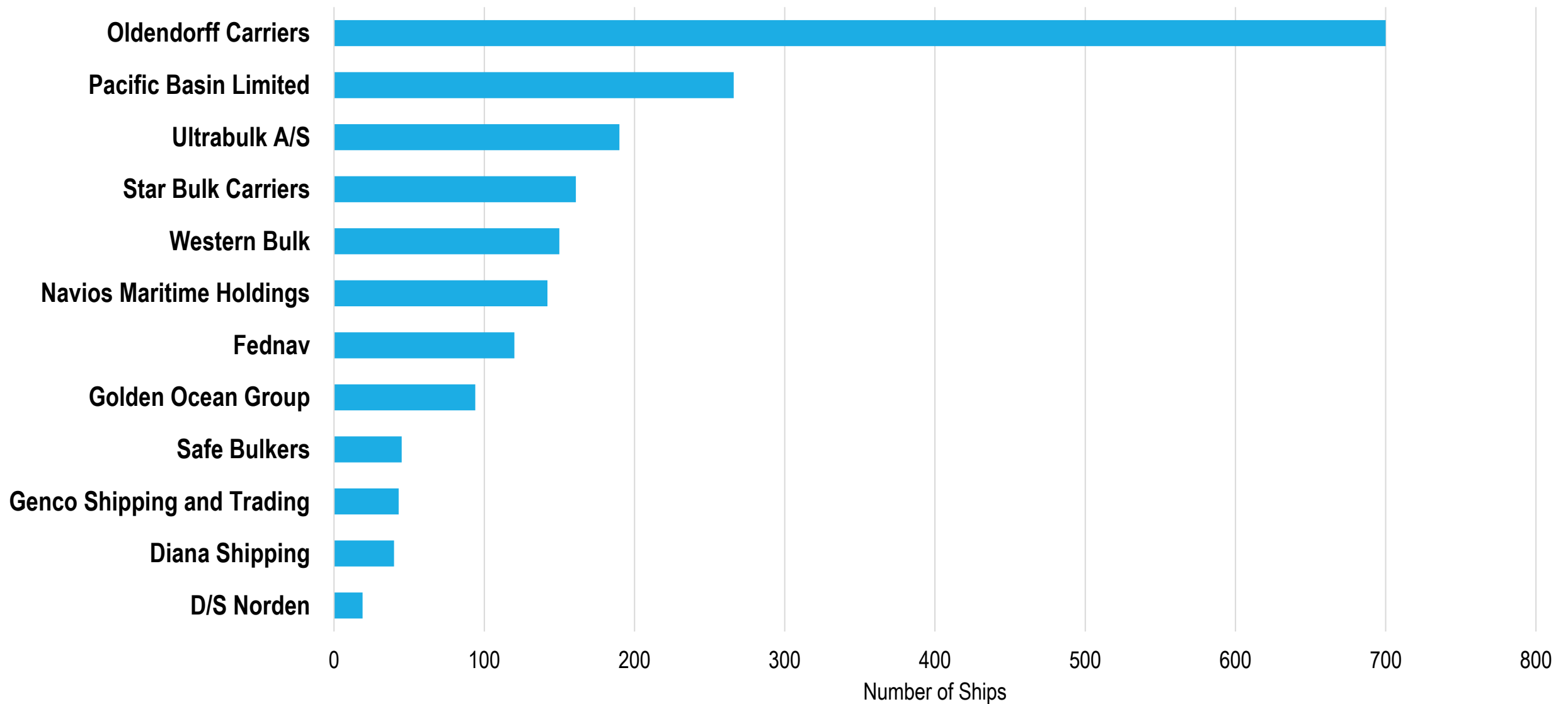
- Regular schedule.
- Sequential shipping services between two maritime ranges (seaboards).
- Balancing the number of port calls and the frequency of services.

# Global Hierarchy of Shipping Lanes



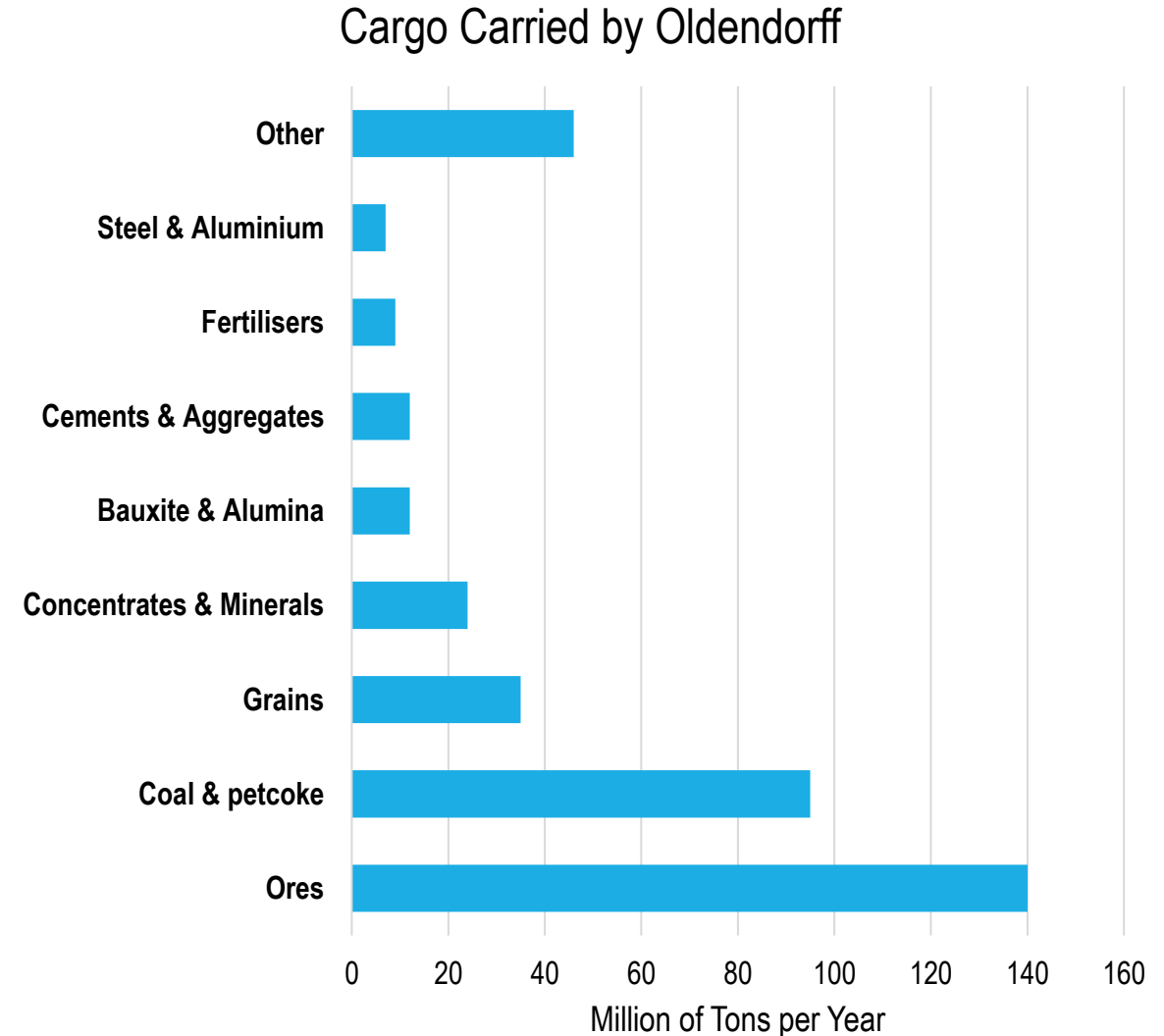


# Largest Dry Bulk Carriers

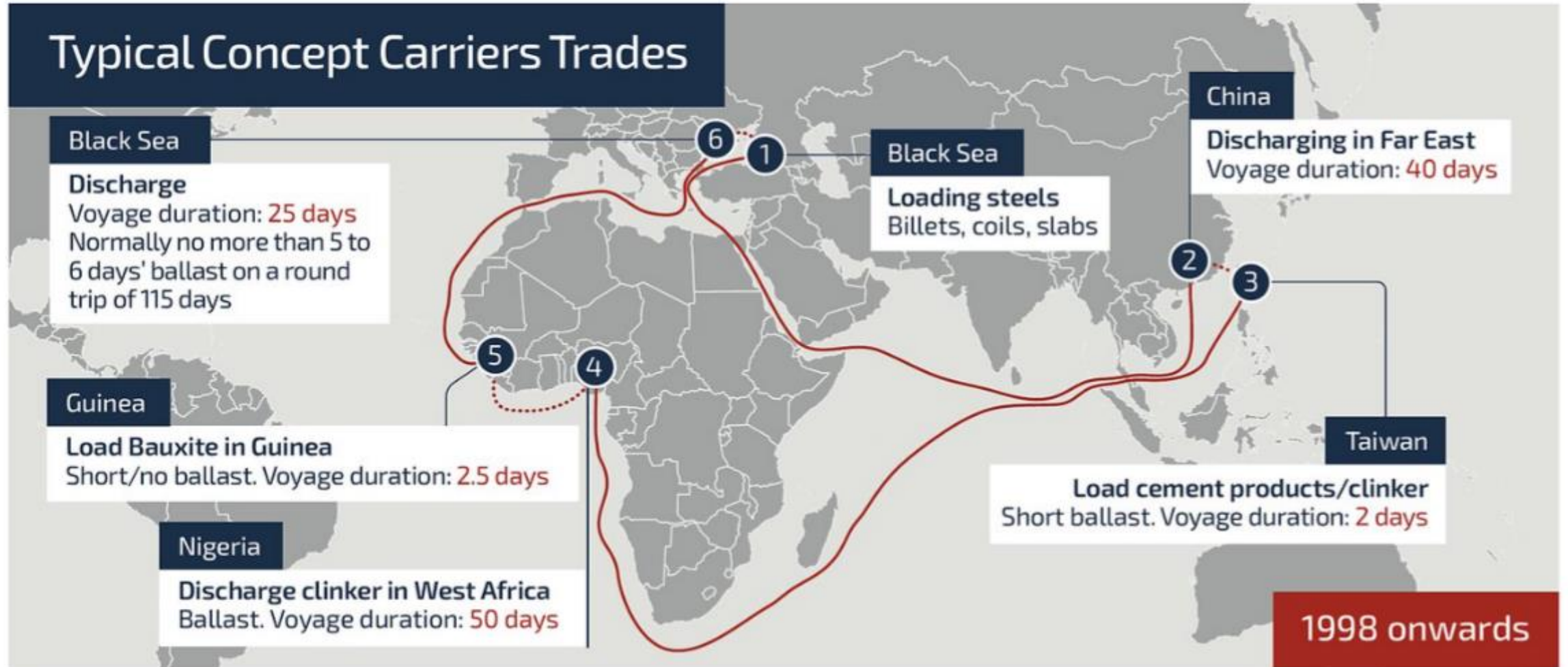


# Dry Bulk Carrier

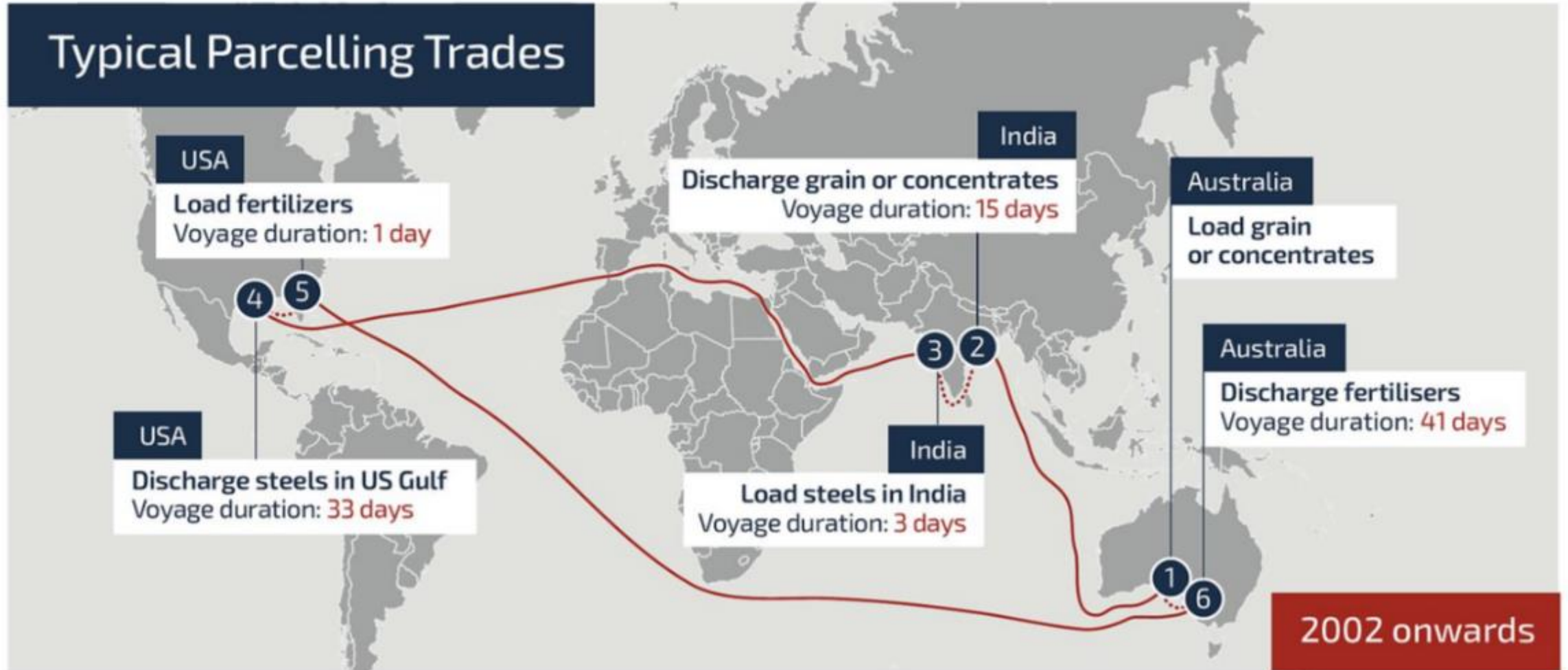
- Oldendorff
  - Founded in 1921.
  - The largest bulk carrier in the world.
  - 380 million tons per year.
  - 15,000 port calls.
  - Reconciling point-to-point trades in a wide variable of bulk markets.



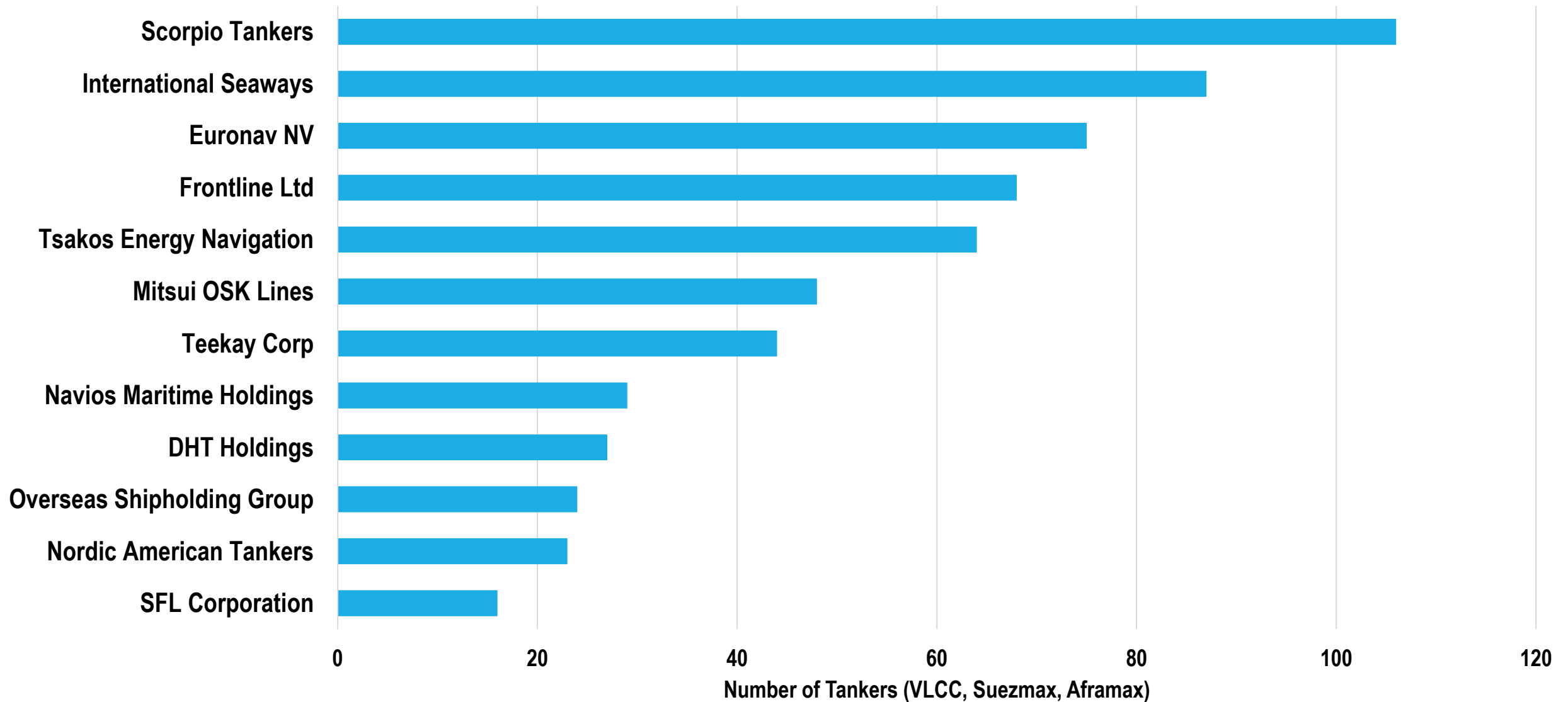
# Optimizing Sequence of Bulk Carrier Trades



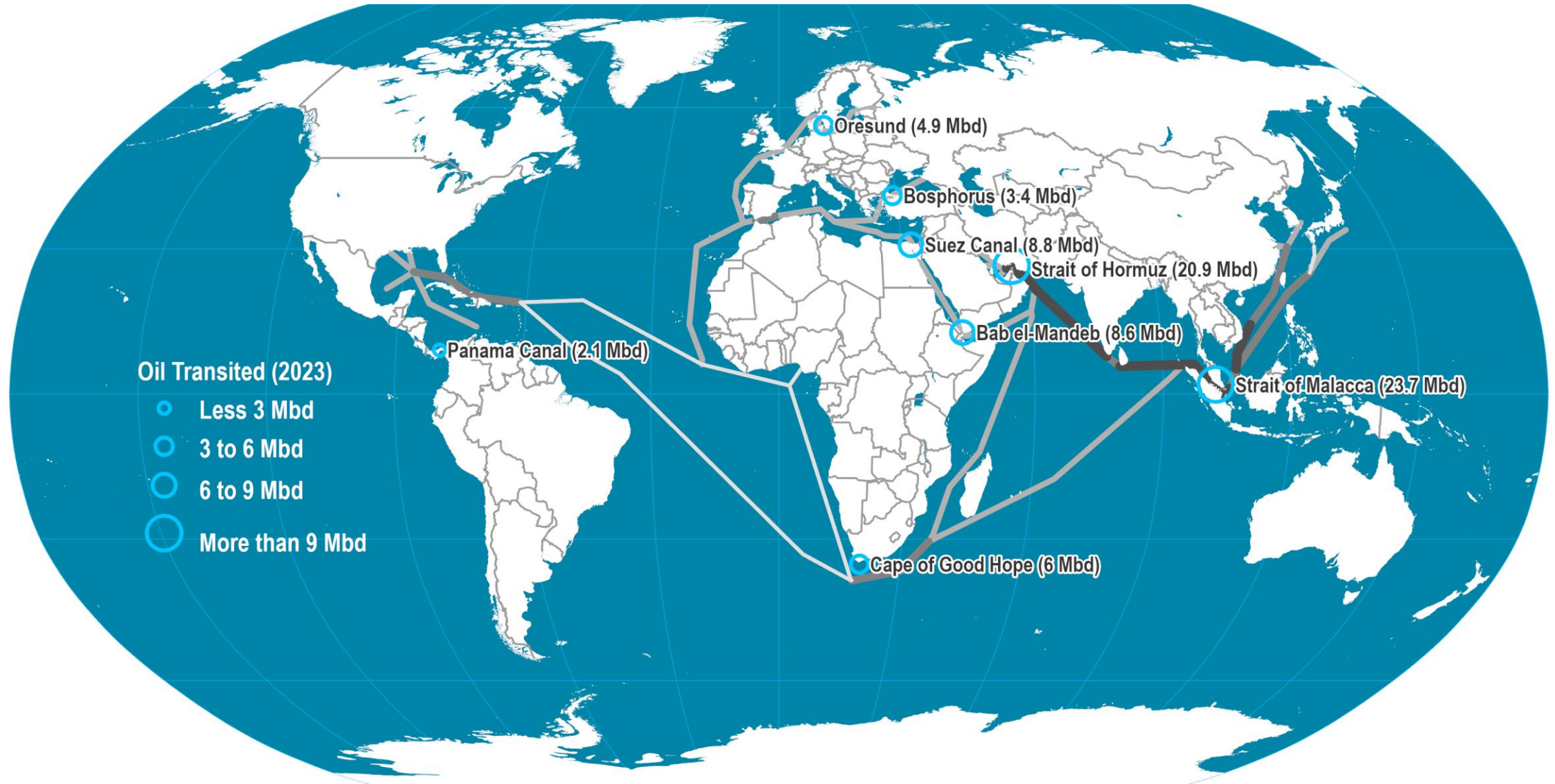
# Example of Parcelling (Tramp) Trades



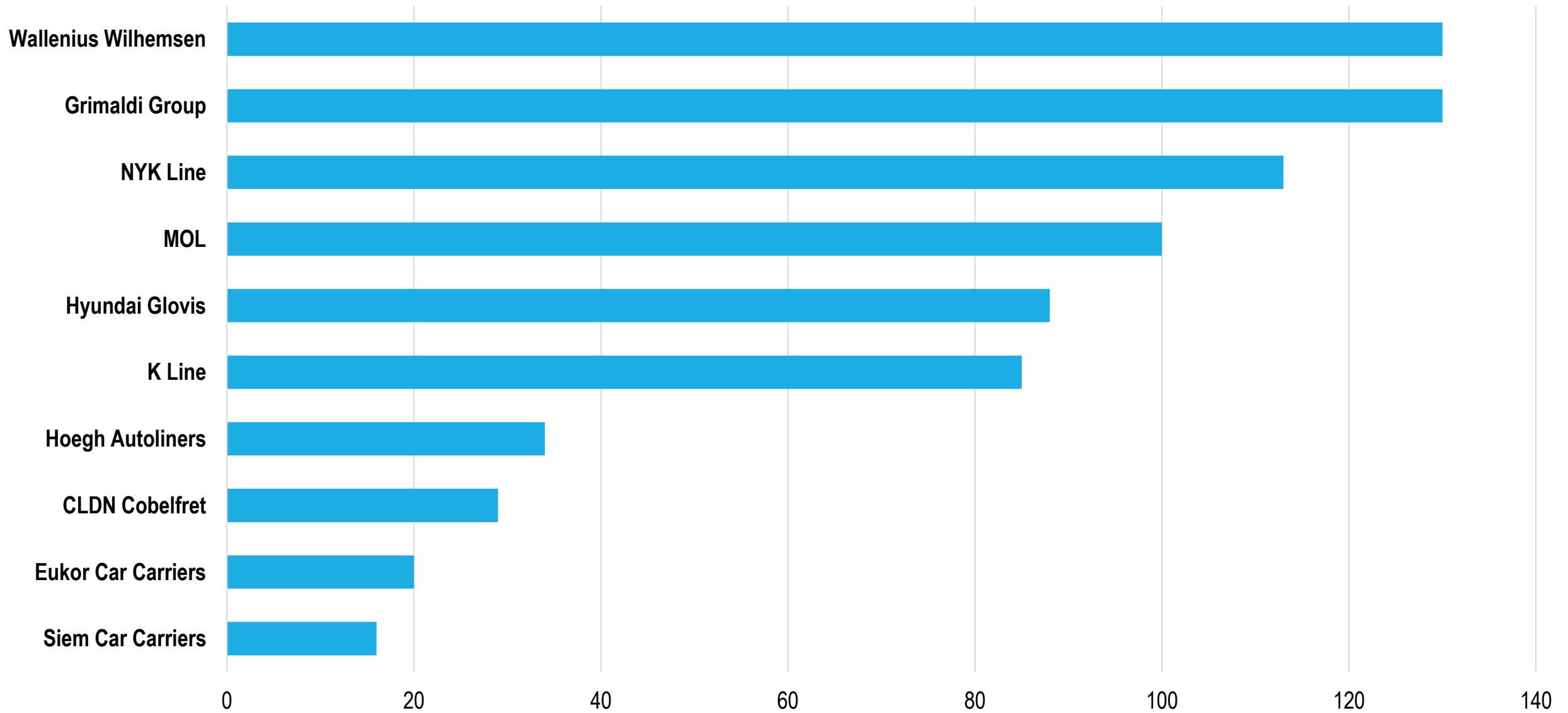
# Largest Oil Tanker Carriers



# Major Oil Flows and Chokepoints



# Largest RORO Carriers in Number of Ships






# K-Line Transatlantic Loop Service



**SAILING FREQUENCY**

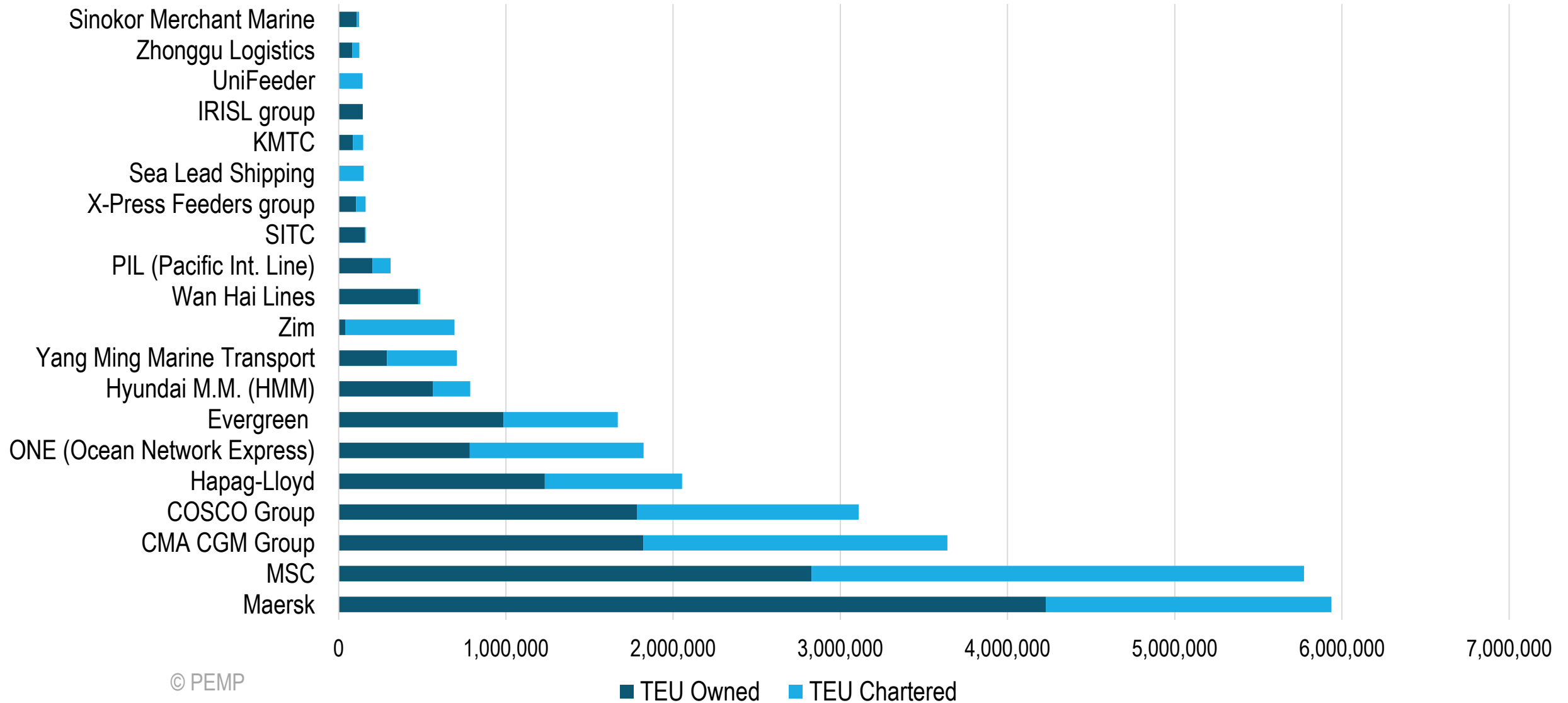
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 WESTBOUND  
 EASTBOUND

 TRANSSHIP CONNECTION TO BALTIC SEA PORTS  
 TRANSSHIP CONNECTION TO NORTH AFRICA / MEDITERRANEAN SEA PORTS  
 TRANSSHIP CONNECTION TO CENTRAL / SOUTH AMERICA EAST COAST PORTS

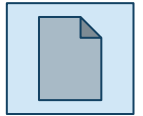
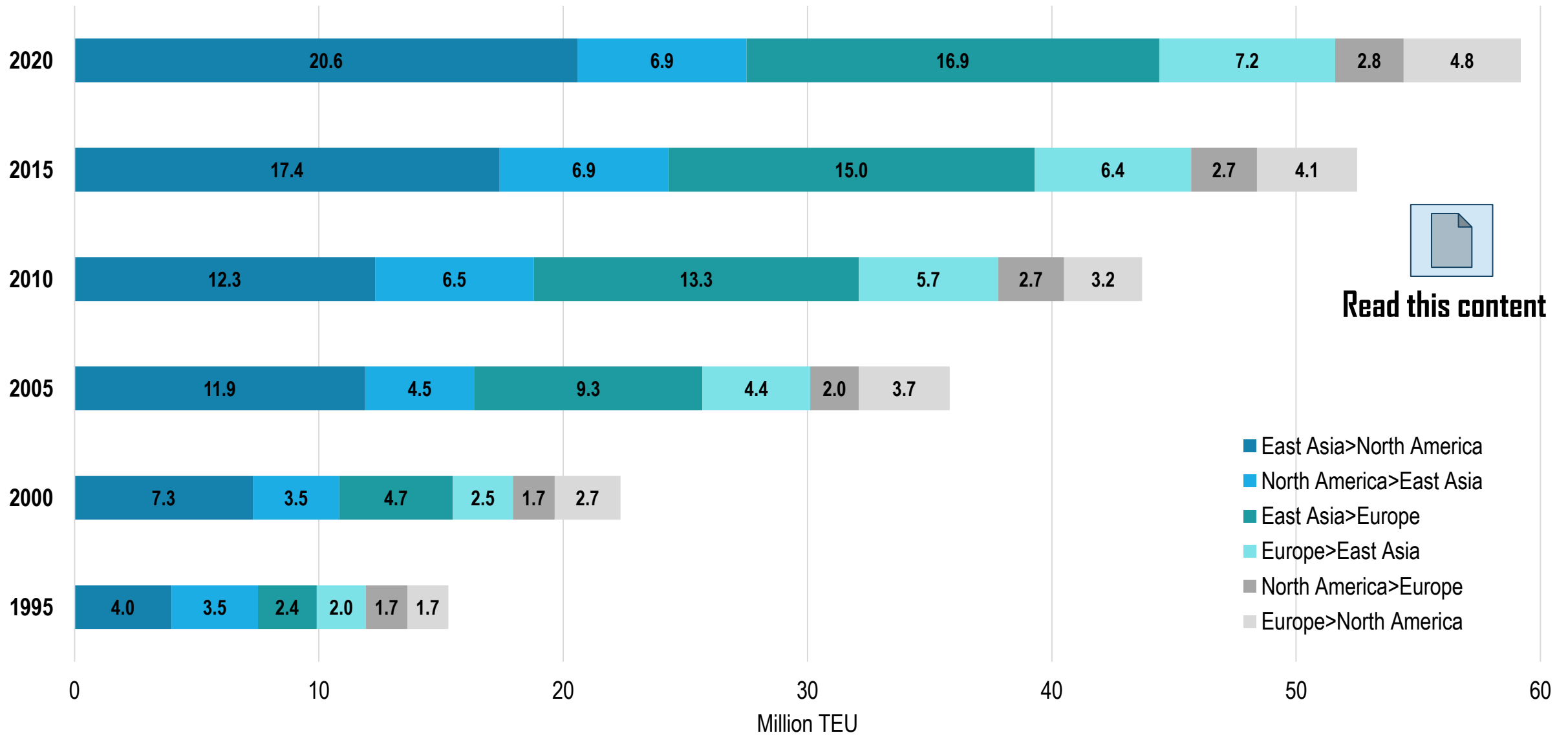


# World's Largest Maritime Container Shipping Operators, March 2024



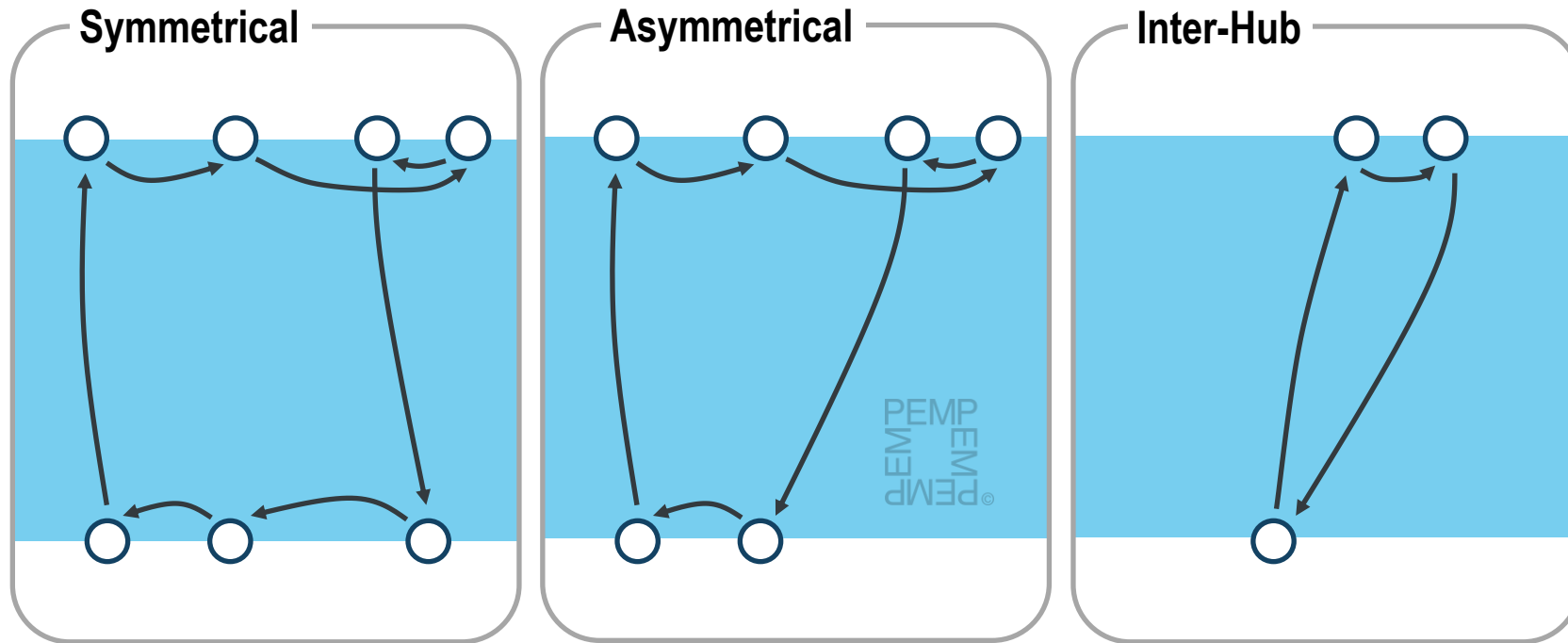
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# Containerized Cargo Flows along Major Trade Routes, 1995-2020 (in million TEUs)

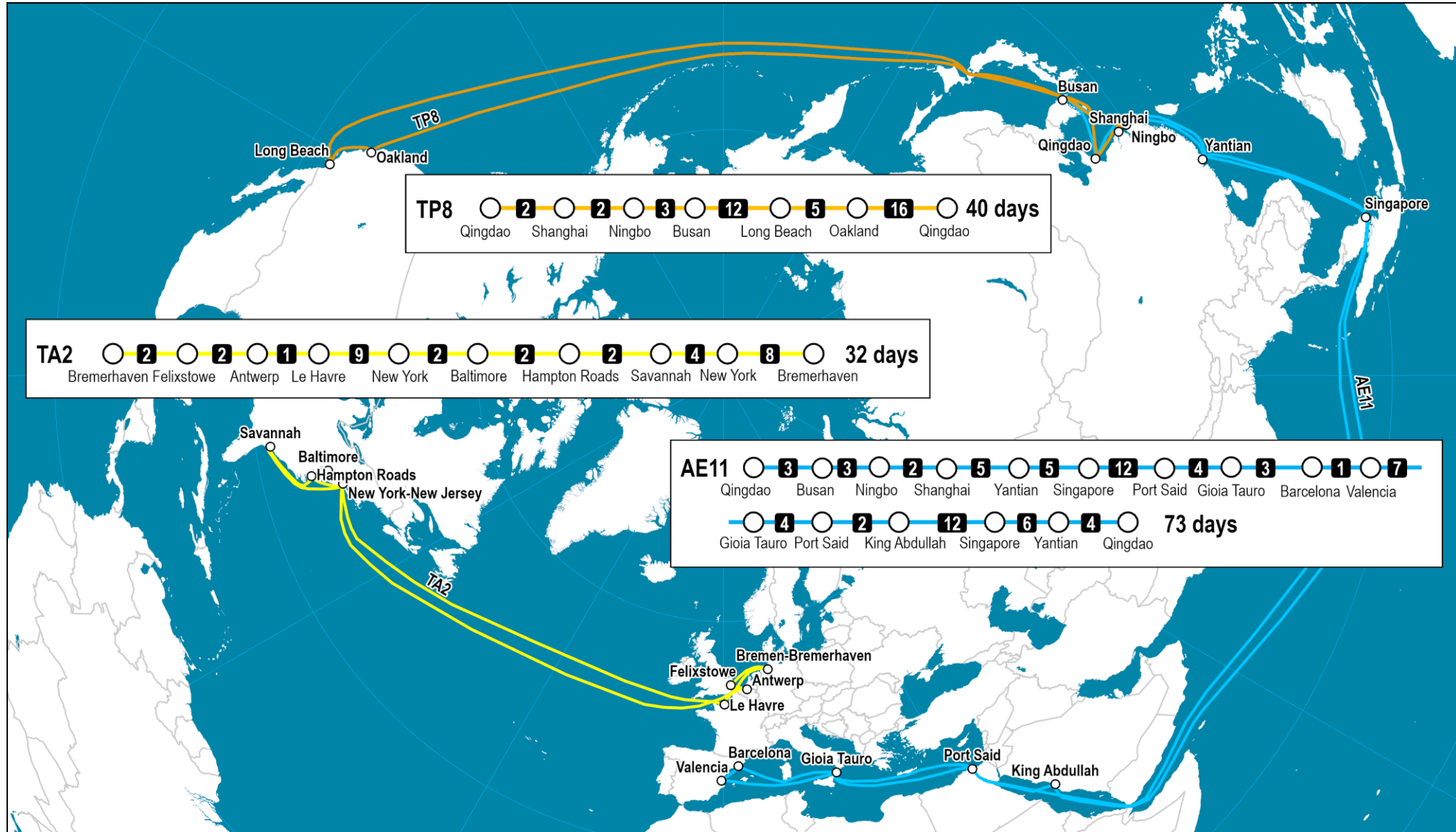


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# Types of Inter-Range Maritime Routes



# Three Major Inter-Range Routes Serviced by Maersk



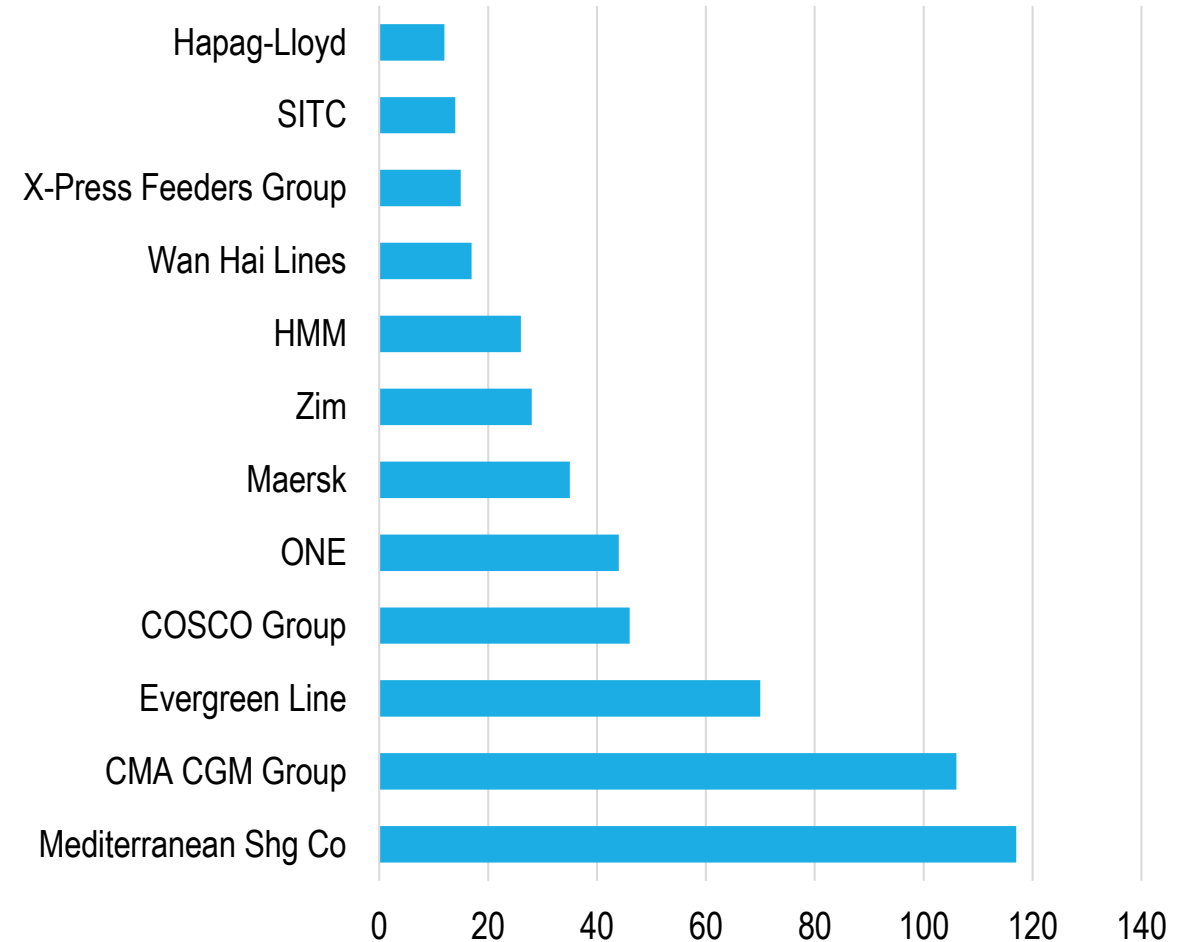
# Vertical Integration for Selected Major Container Shipping Lines

GROUP	SHIPPING ACTIVITY	TERMINAL ACTIVITY	LOGISTICS
AP Moller	 MAERSK LINE	 Lifting Global Trade. APM TERMINALS	 (Fully integrated in Maersk Line in 2019)
China Cosco Group	 OOCL We take it personally COSCO SHIPPING	 COSCO SHIPPING 中遠海運港口有限公司 COSCO SHIPPING Ports Limited The Ports For ALL	 COSCO SHIPPING Logistics
NYK Group	 ONE OCEAN NETWORK EXPRESS Merger with MOL and K-Line		 Yusen Logistics
MSC	 MSC	 TIL Terminal Investment Limited	 MEDLOG Rail & Logistics
CMA CGM	 CMA CGM	 TERMINAL LINK A joint venture of CMA CGM and CMPORT CMA Terminals (*)	 ceva LOGISTICS (acquisition completed in April 2019)

# Order Book

- Future capacity addition
  - A ship can take up to three years to be delivered once ordered.
  - Shipping lines have order books that are an overview of their expectations.
  - High order books: anticipating growth in shipping demand.
  - Low order books: in a recession or market slump.

Number of Ships Ordered by Container Shipping Lines  
(as of 2024)



# Some Freight Charges

- Terminal Handling Charges (THC)
  - Charged at the port of origin and destination.
  - Labor, equipment and temporary storage.
- Port Dues
  - Charged to use the port facility.
  - Often based on gross tonnage.
- Ocean freight (OCE)
  - Cost of transporting goods by ocean vessel from one port to another.
- Bunker Adjustment Factor (BAF)
  - Surcharge that compensates for fuel price fluctuation.
- Congestion surcharge (CON)
  - Compensates for congestion and delays at specific ports.
- Peak Season Surcharge (PSS)
  - Applied during high-volume trade periods.
- Low Sulphur Charge (LSC)
  - Surcharge for ships operating in emission-controlled areas.
- Suez Canal Surcharge (SUE)
- Panama Canal Surcharge (PCC)

# Challenges to the Shipping Industry

- Environmental regulations (compliance costs)
- Security (theft and piracy)
- Geopolitics (conflicts, tariffs)
- Supply chain disruptions (infrastructure failure, labor disputes)
- Market demand (shift in demand and sourcing)
- Digitalization (digital transformation and automation)





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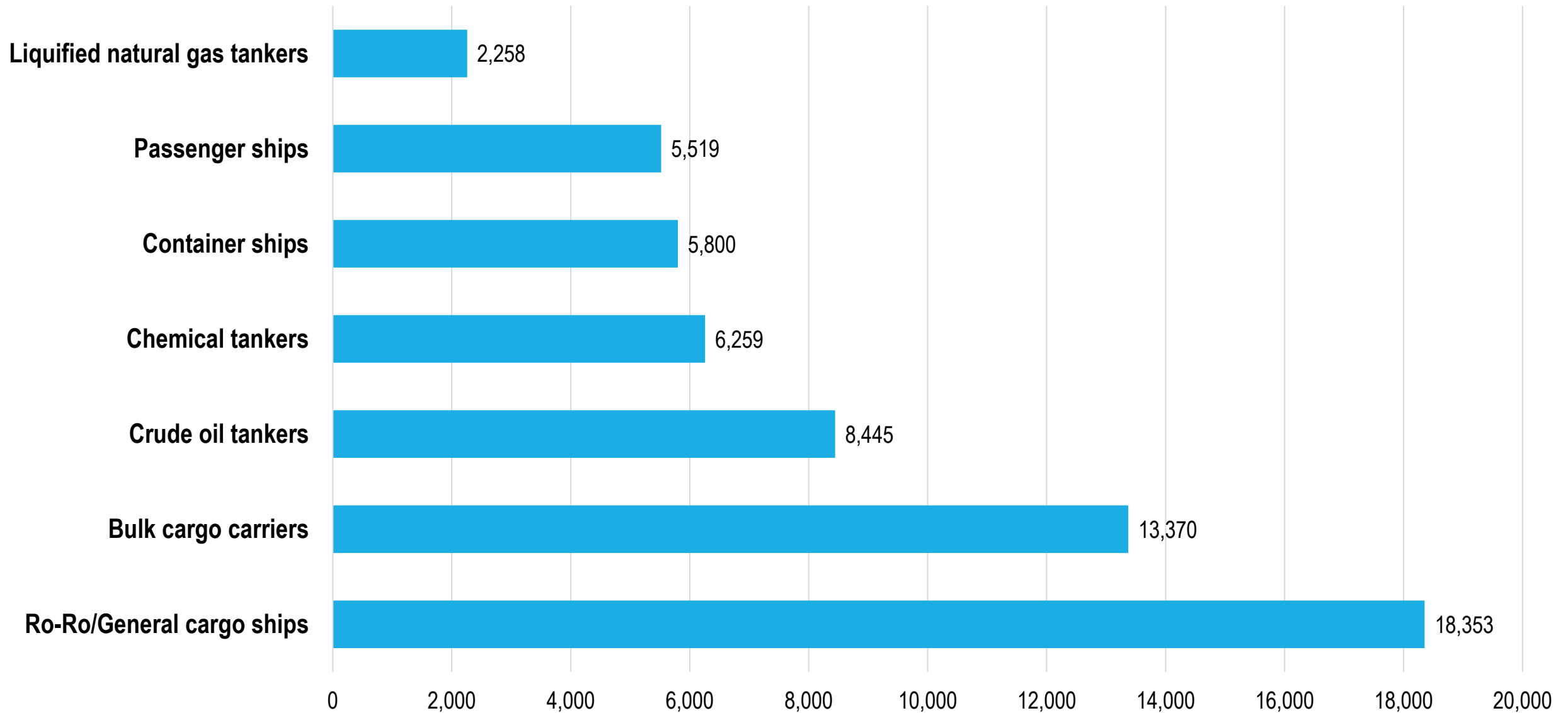


# C. Shipowners

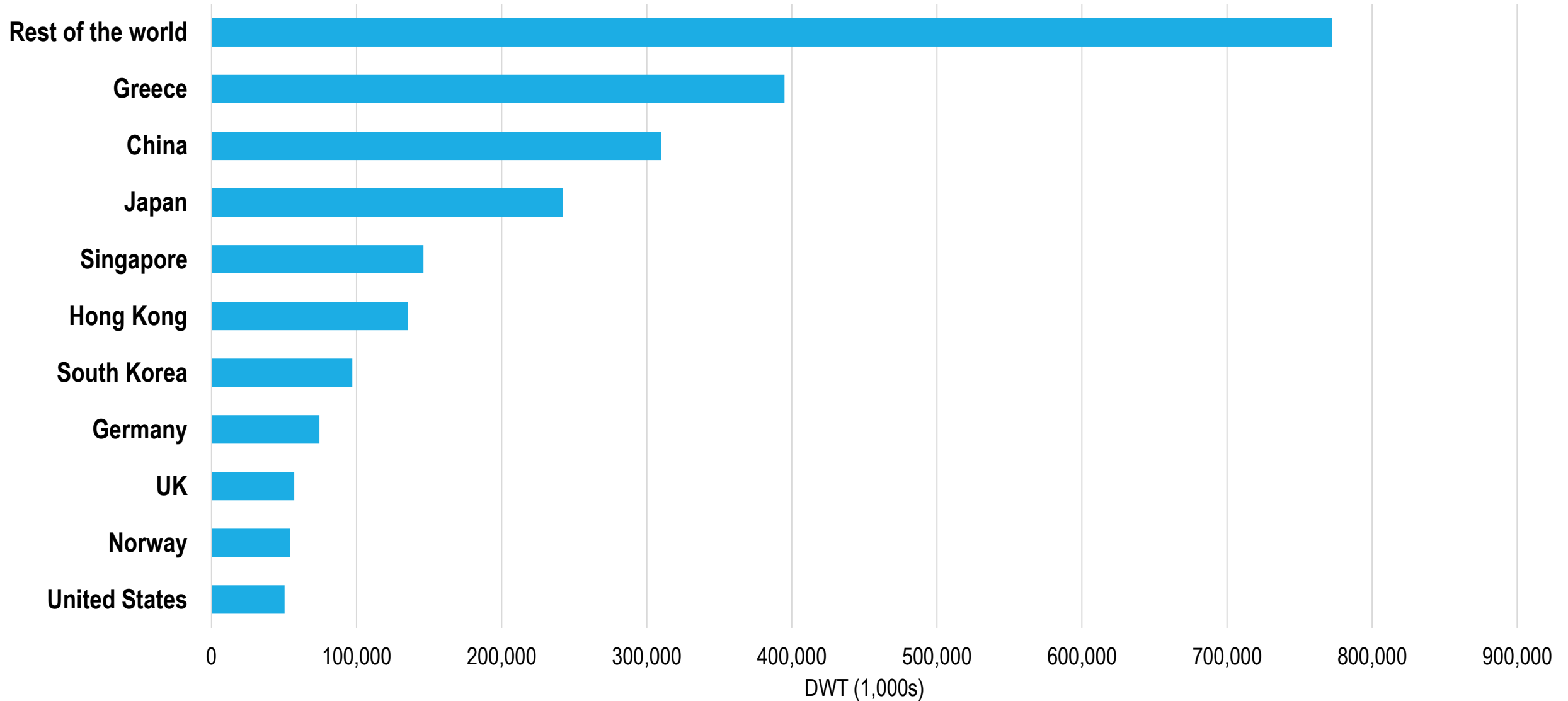
# Shippers and Shipowners

- Context
  - A person, corporation or investment fund owning ships.
  - Equip ships with crew and stores.
  - Most carriers are shipowners.
  - Negotiate with shipbrokers and carriers to use assets profitably.
- Goals
  - Shipowners must meet the needs of the shippers.
  - Right ship at the right place at the right time.
- Decision process
  - Which type of ships to buy or sell.
  - Numbers.
  - Size.
  - Financing.

# Number of Merchant Ships by Type, 2023



# Tonnage by Country of Ownership, 2024



# Shippers and Shipowners

- International Chamber of Shipping
  - Trade association of shipowners and carriers.
  - 80% of the world's DWT.
  - Covers regulatory, legal and operational issues related to shipping.
  - Is consulted by the International Maritime Organization.
  - Diffusion of best practices in ship design and operations.



# Classification Societies



- Purpose

- NGO that maintains technical standards (ship construction and operation).
- During construction, inspect all the parts to ensure compliance with international standards.
- Issue a classification certificate.
- Necessary to have seaworthiness and marine insurance.
- During operation, inspect ships to ensure safety and seaworthiness.

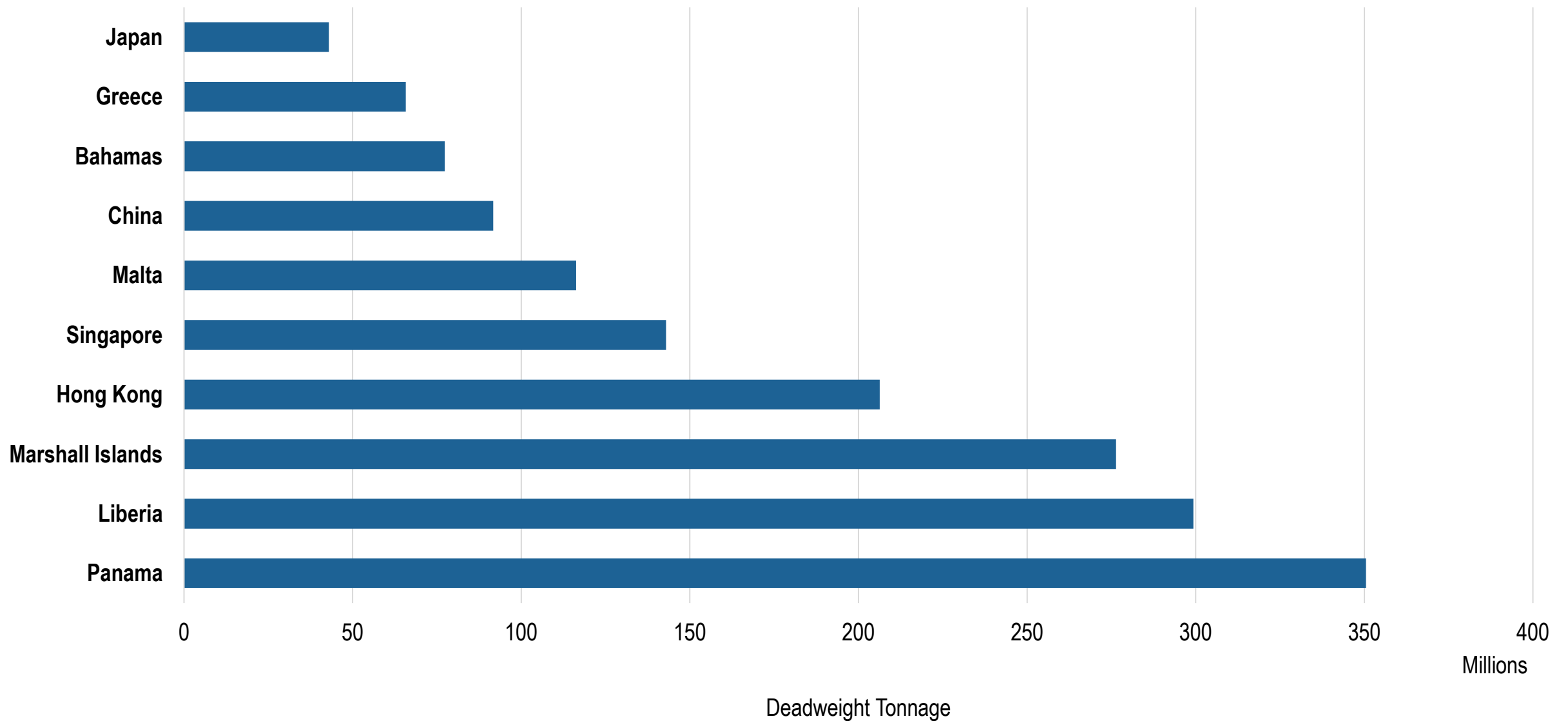
- Main classification societies

- DNV (Det Norske Veritas; 21% of ships).
- NK (Nippon Kaiji Kyokai; 20% of ships).
- ABS (American Bureau of Shipping; 18%).

# Flags of Registry

- Regulation
  - Under maritime law, the owner is bound to the rules and regulations of the country of registration.
  - Less stringent regulations confer considerable savings in operating costs.
- Registry costs
  - Compensated according to the ship's tonnage.
  - Registry costs between 30 to 50% lower.
- Operating costs
  - Operating costs 12 to 27% lower than those of traditional registry fleets.
  - Lower manning expenses.

# Largest Countries of Ship Registry, 2020





# Share of Foreign-flagged Deadweight Tonnage, 1989-2021

