Introduction to Maritime Transport



The MSC Irina, one of the largest container ships in the world (24,346 TEU), at the new transshipment port of Vizhinjam, India, in 2025.

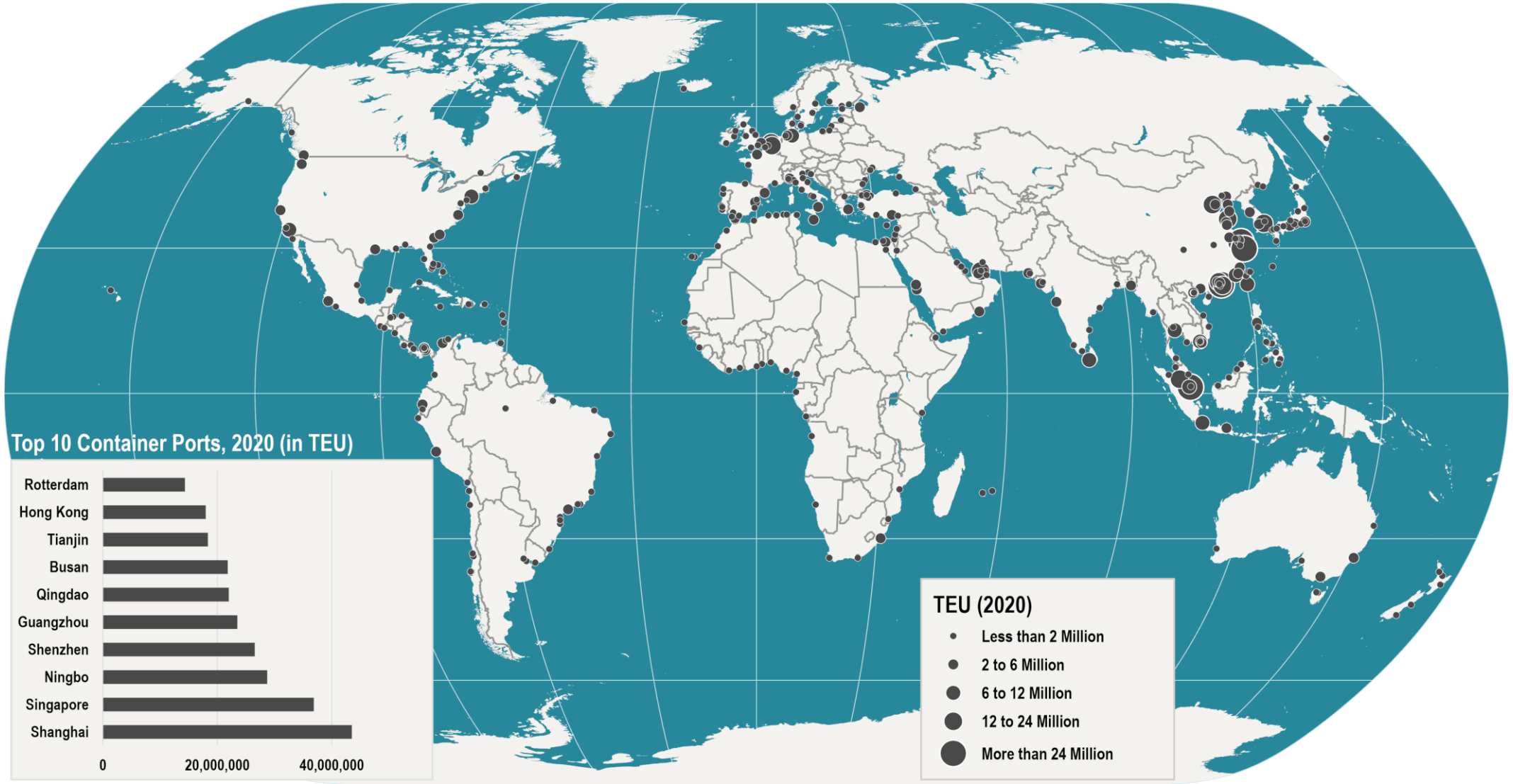
Dr. Andrea Gallo

Why maritime transport matters

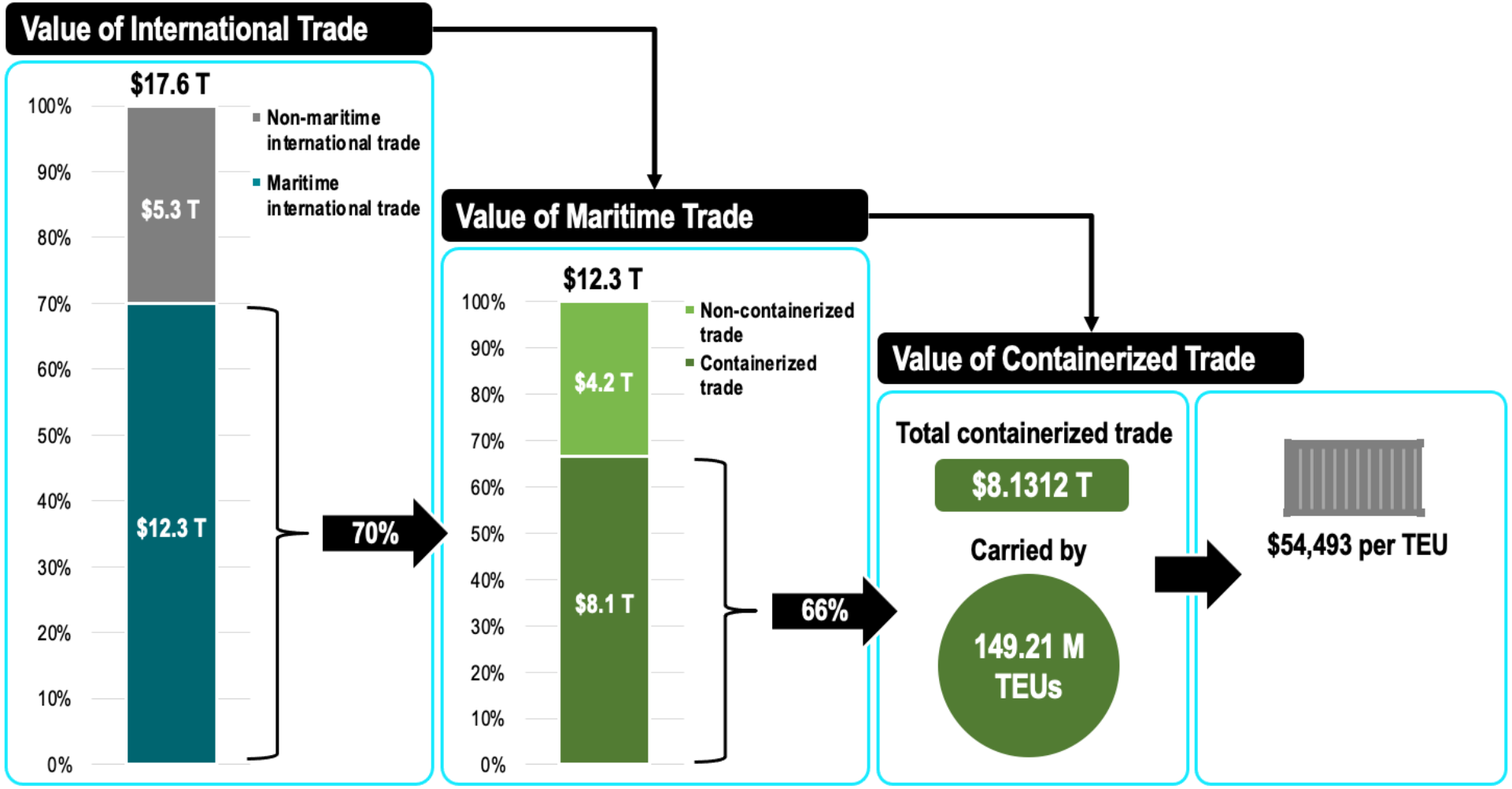
The weight of the sea in world trade, the economics that make shipping cheap, and the technological revolutions, from steam to the container, that shrank the world.

Most goods we use, from the coffee of the morning to the phone in our pocket, have spent part of their life on a ship. Yet maritime transport remains almost invisible to consumers.

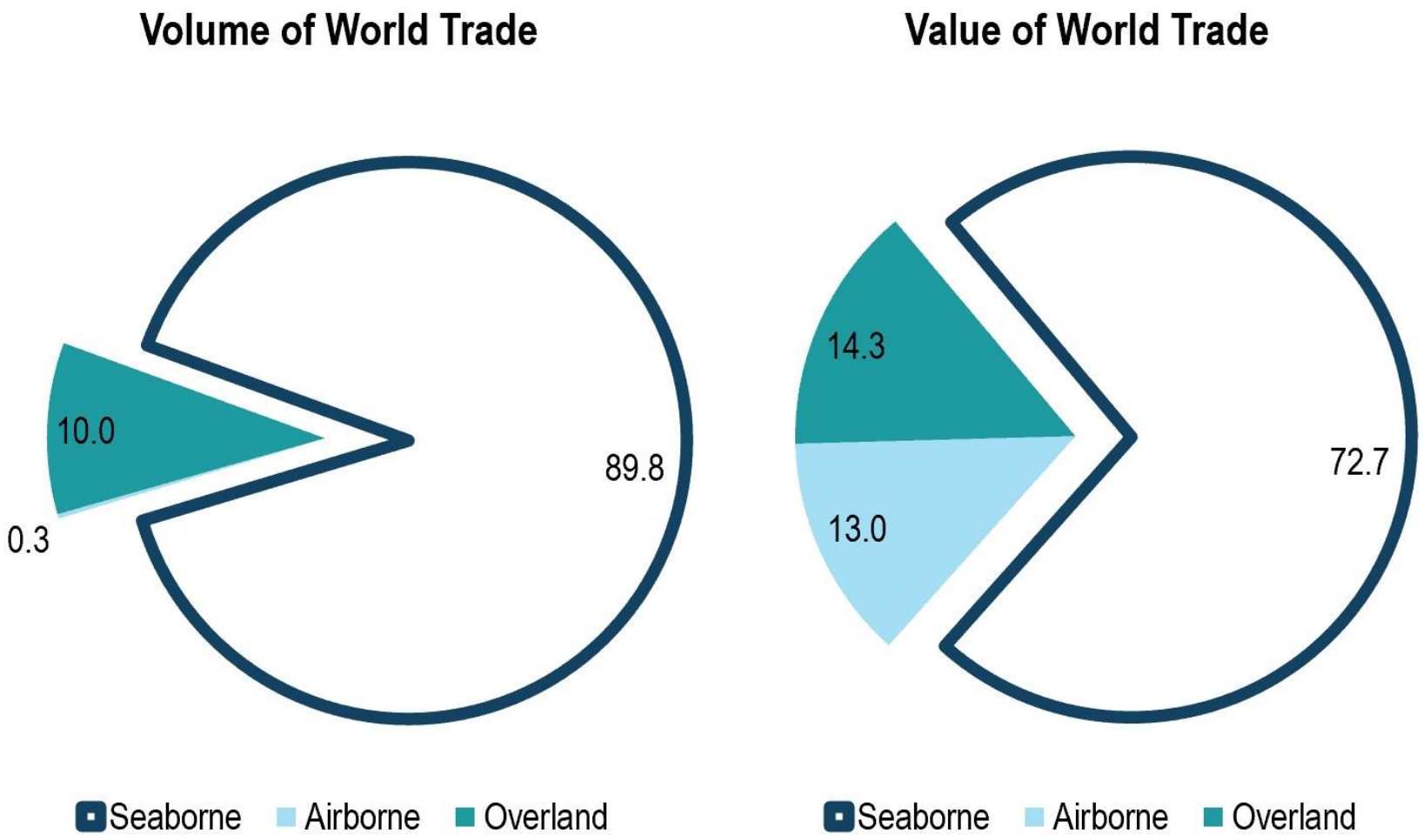
Economic Geography



Why maritime transport matters (2020)

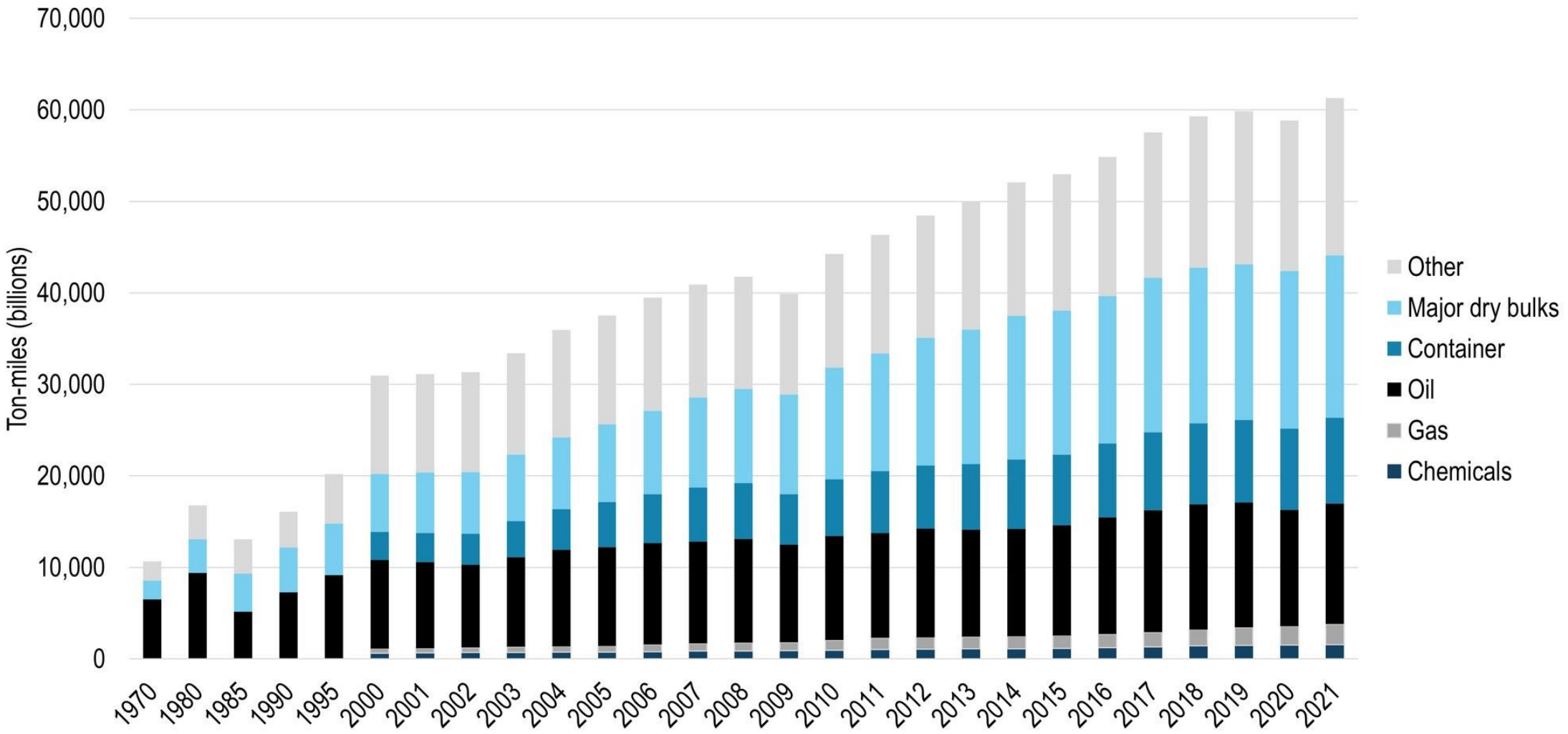


Modal shares of world trade by volume and value (2008)



Source: J.-P. Rodrigue, PEMP (2008 data); UNCTAD, Review of Maritime Transport 2025

What ships carry: world seaborne trade by cargo type, 1970-2021



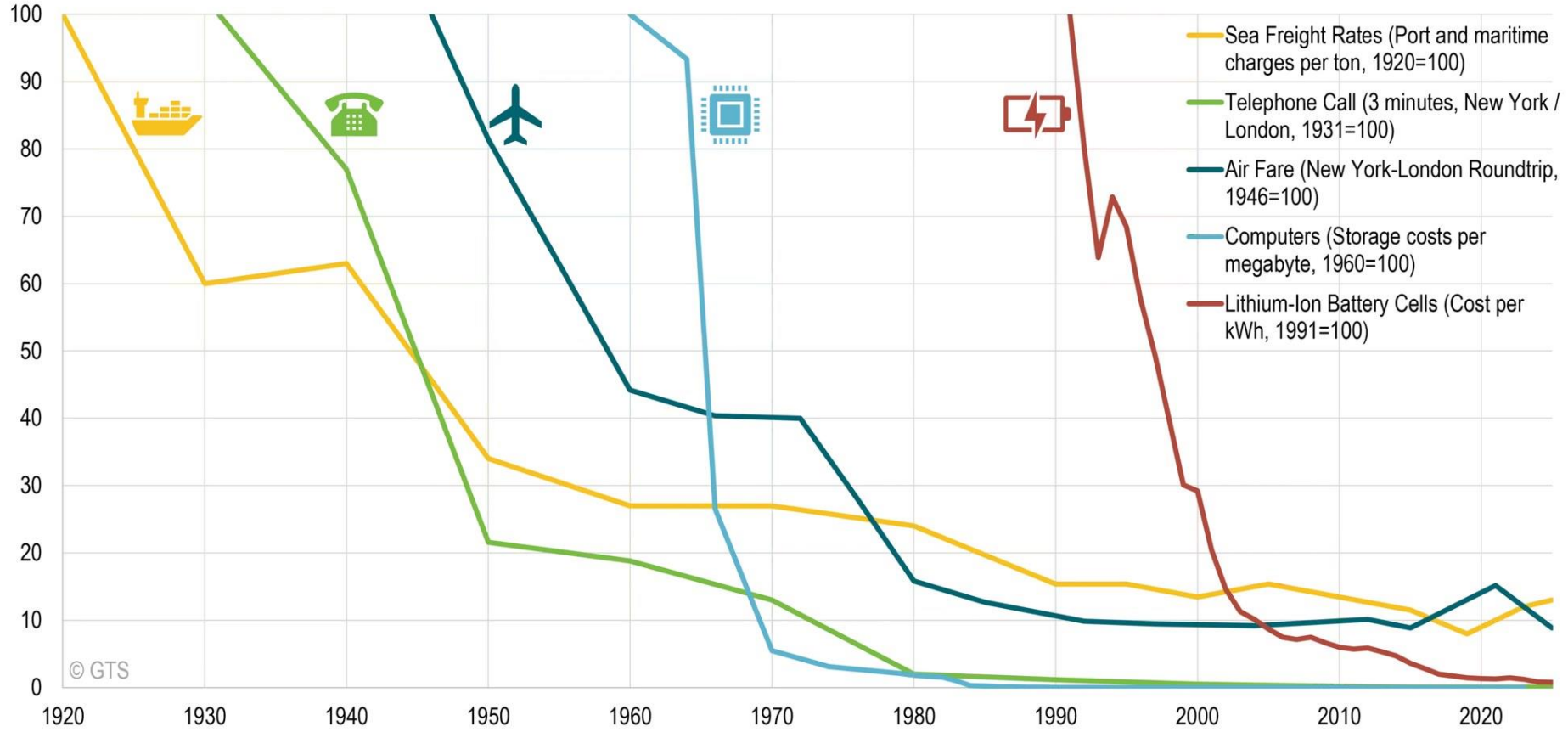
Source: UNCTAD, Review of Maritime Transport, various years; figure from PEMP (educational use)

Maritime trade and the world fleet in numbers

- **Trade**: seaborne trade volume grew by **2.2%** in 2024, tonne-miles by **5.9%**, almost three times faster. UNCTAD expects only **+0.5%** in 2025 and about +2% a year in 2026-2030.
- **Distance**: the average voyage rose from **4,831** nautical miles in 2018 to **5,245** in 2024, because of the Red Sea crisis, sanctions on Russia and new sourcing patterns.
- **Fleet**: on 1 January 2025 the world commercial fleet counted about **112,500** ships with **2.44 billion** deadweight tonnes, +3.4% in a year.
- **Containers**: in November 2026 the container fleet reached about **35 million TEU** on 7,680 ships; world port throughput exceeded **1 billion TEU** in 2025.
- **Energy transition**: ships able to use alternative fuels were **8%** of the active fleet by tonnage in May 2025, but **53%** of the orderbook.

Source: UNCTAD, Review of Maritime Transport 2025 (overview); Alphaliner via El Estrecho Digital (9 November 2026); Container News (2026)

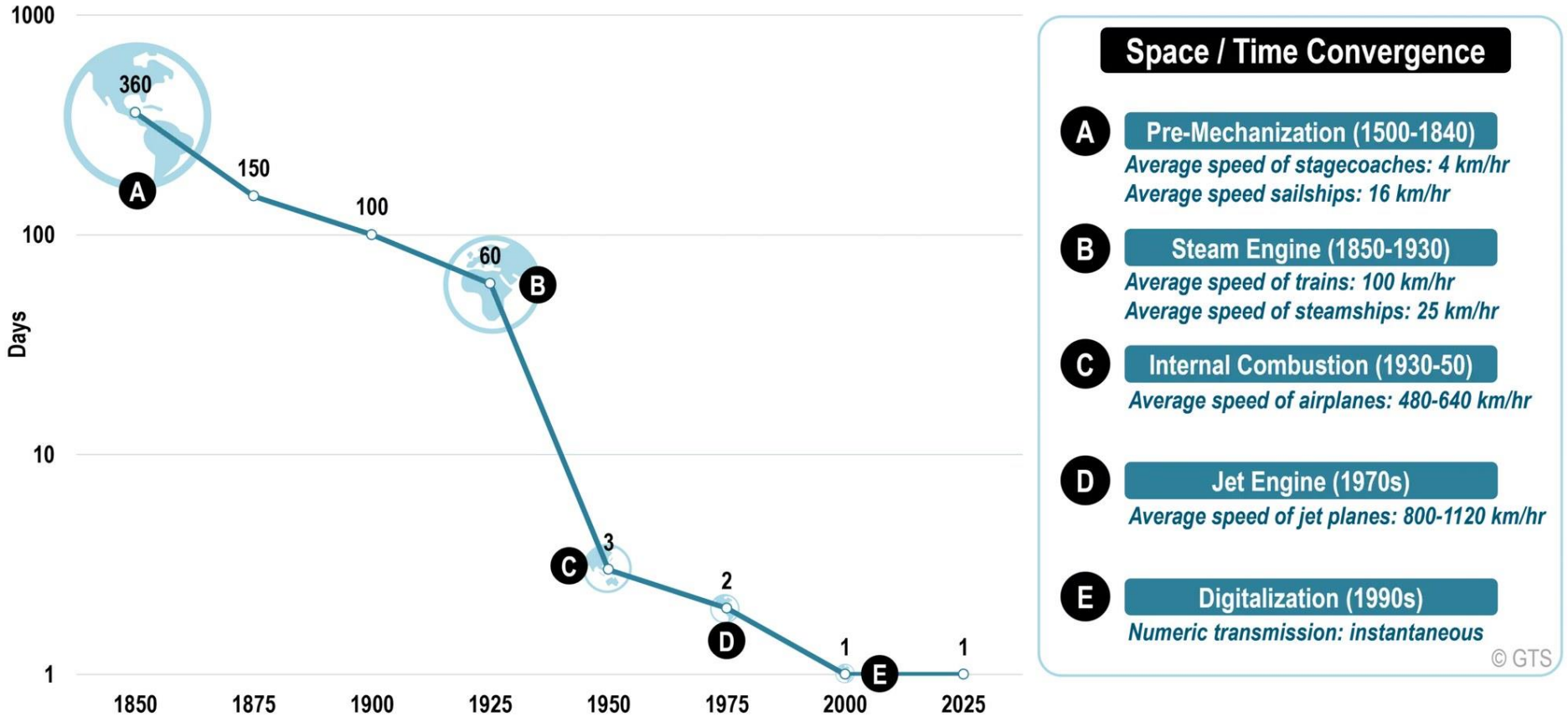
The fall of transport and communication costs, 1920-2025



From this perspective cheap shipping is a precondition of globalisation and of the global value chains studied earlier in the course: when moving a container across the world costs little, location can follow labour costs and markets.

Source: J.-P. Rodrigue, The Geography of Transport Systems, 6th ed., Routledge – transportgeography.org (educational use) · «Transport and Communication Costs Indexes, 1920-2025»

Space/time convergence: days to circumnavigate the globe



Donald Janelle (1968) called this process **time-space convergence**: absolute distances stay the same, relative distances in time and cost shrink. Maritime transport shrank cost more than time.

Source: J. McHale (1969); D. Janelle (1968), The Professional Geographer, 20(1); figure from The Geography of Transport Systems (educational use)

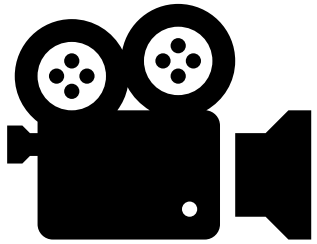
The container revolution

On 26 April 1956 the tanker Ideal-X sailed from Newark to Houston with 58 containers on deck: the trucking entrepreneur Malcom McLean had invented a new way to move goods.

- **The problem**: before containers, «break-bulk» cargo was loaded piece by piece by dockworkers; ships spent more time in port than at sea, and theft and damage were common.
- **The innovation**: a standard steel box moved by ship, truck and train without opening it (**intermodality**). Levinson estimates that loading cost fell from **$5.86** per ton of loose cargo to about **$0.16** on the Ideal-X.
- **Standards**: ISO dimensions (1968) made the box universal: the **TEU** (twenty-foot equivalent unit) became the measure of the industry.

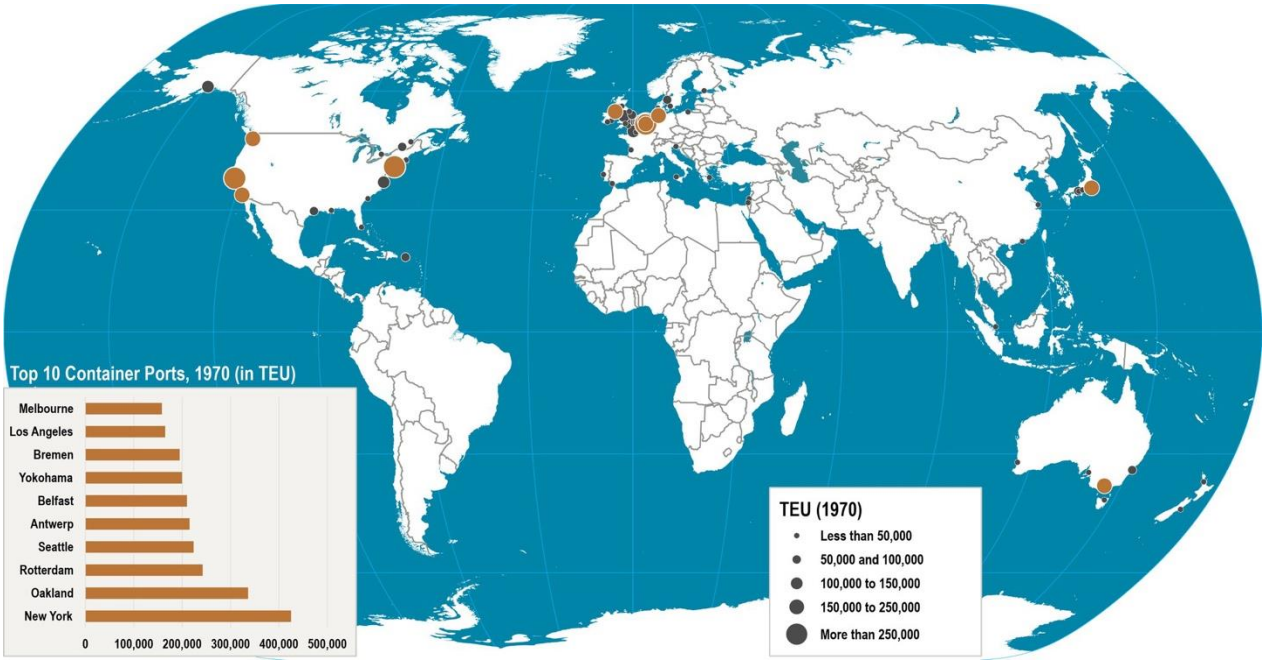


Malcom McLean at Port Newark, 1957.

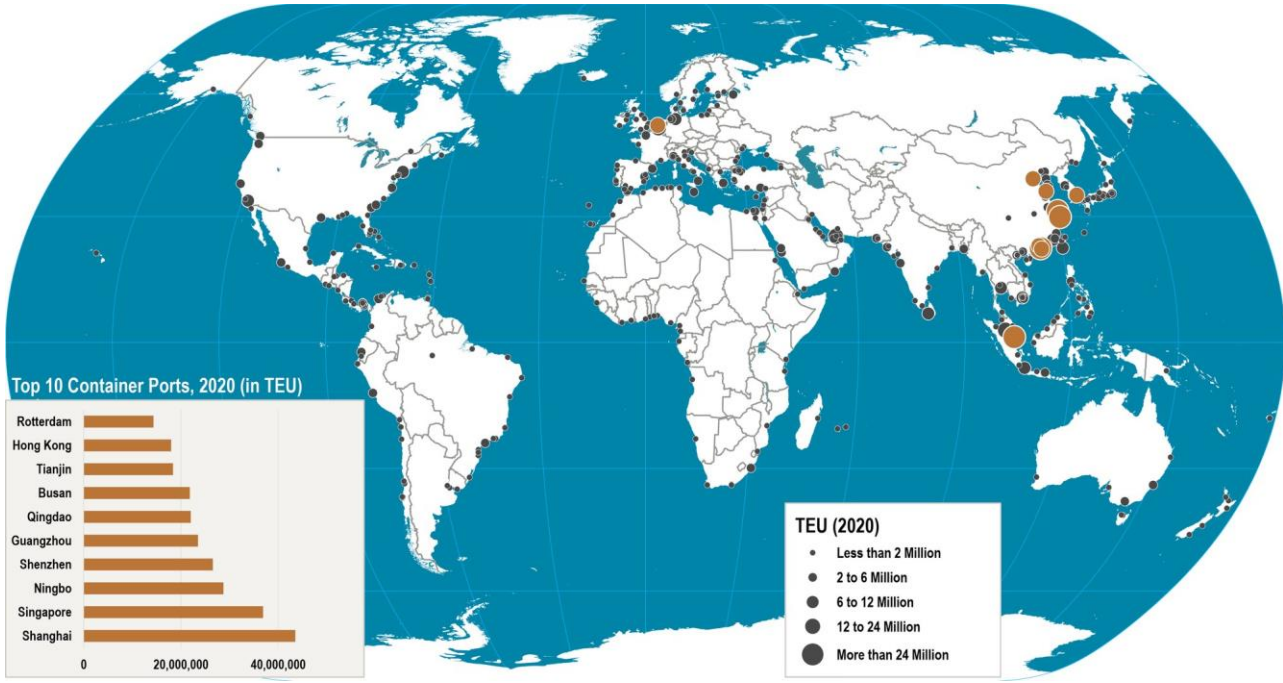


Source: M. Levinson, The Box (2006); J.-P. Rodrigue (2024); photo: Wikimedia Commons

The waves of containerisation: 1970 and 2020



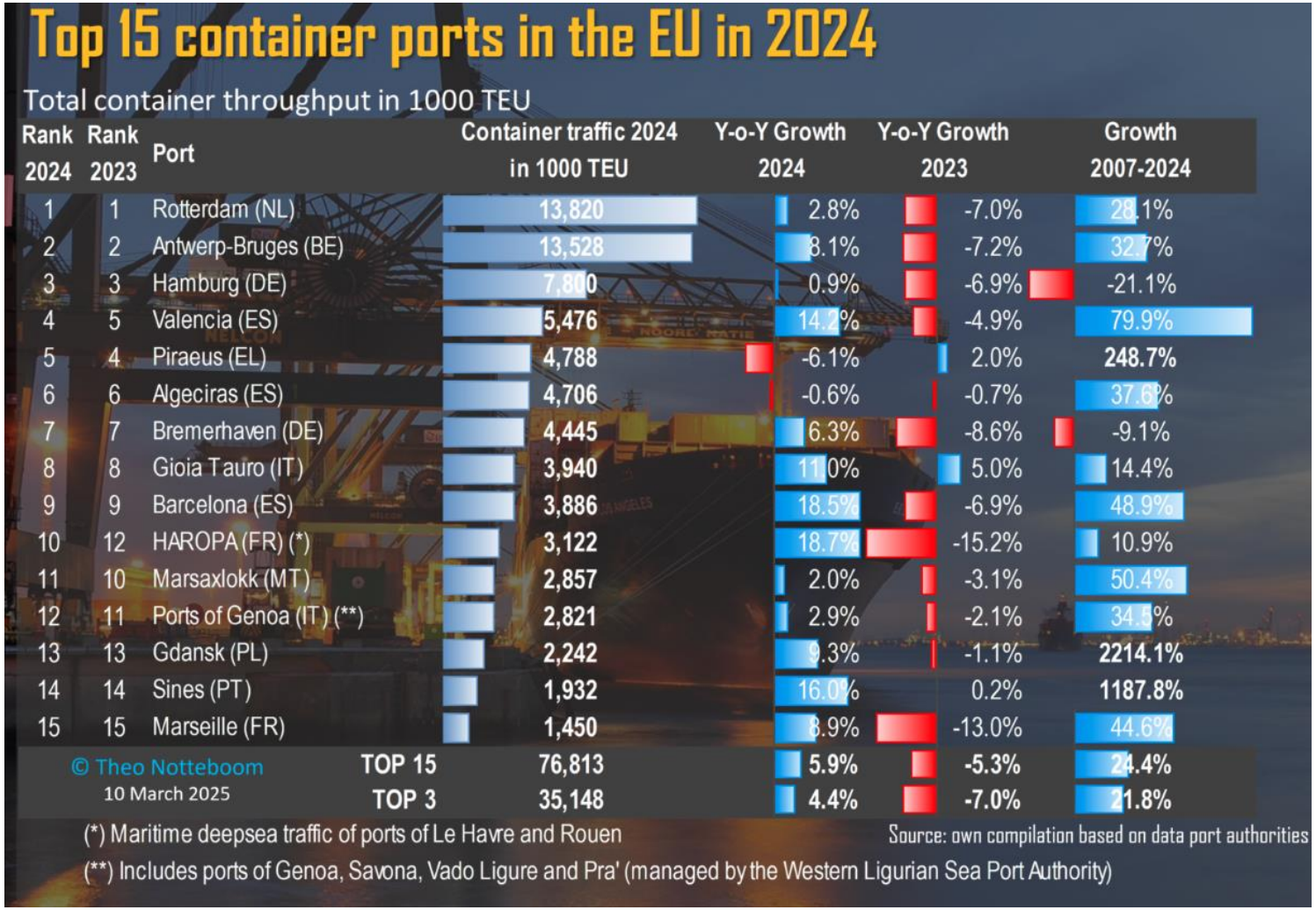
1970: container ports in North America, Western Europe, Japan and Australia; New York and Rotterdam lead.



2020: the centre of gravity has moved to East Asia; Shanghai, Singapore and Ningbo lead.

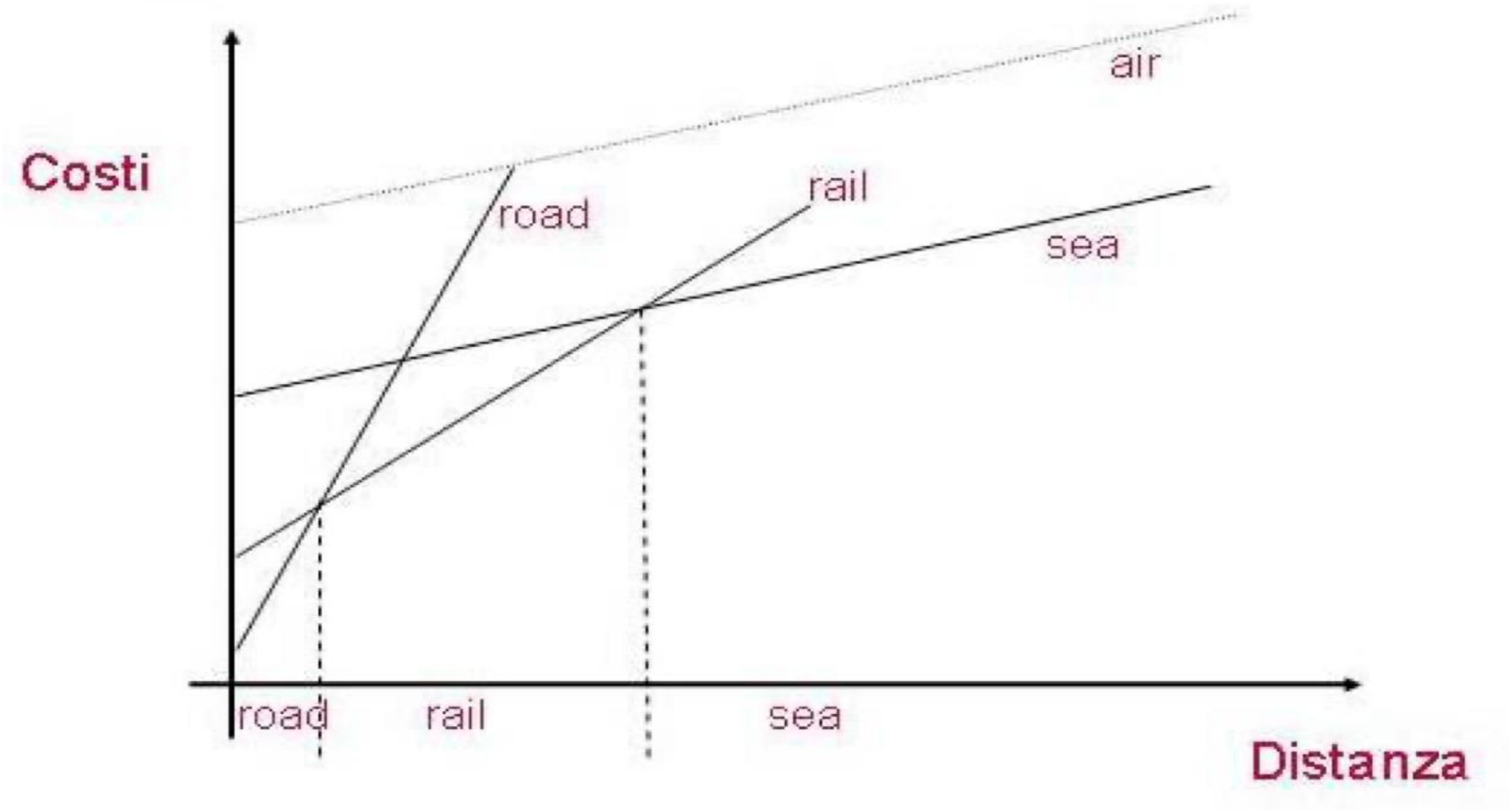
Source: D. Guerrero, J.-P. Rodrigue (2014), Journal of Transport Geography, 35; maps from PEMP (educational use)

European Ports in 2024



Source: D. Guerrero, J.-P. Rodrigue (2014), Journal of Transport Geography, 35; maps from PEMP (educational use)

The Hoover Model

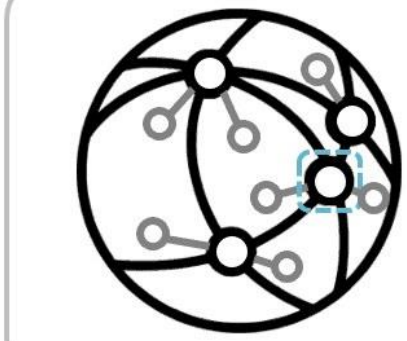


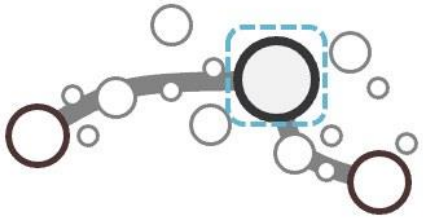
Source: D. Guerrero, J.-P. Rodrigue (2014), Journal of Transport Geography, 35; maps from PEMP (educational use)

The geographical scales of maritime transport

Maritime transport works at the global scale of oceans and intercontinental routes, at the regional scale of seas and port systems, and at the local scale of ports and port cities. Scale is a level of organisation, not only a size.

Nodes, links and relations at three scales



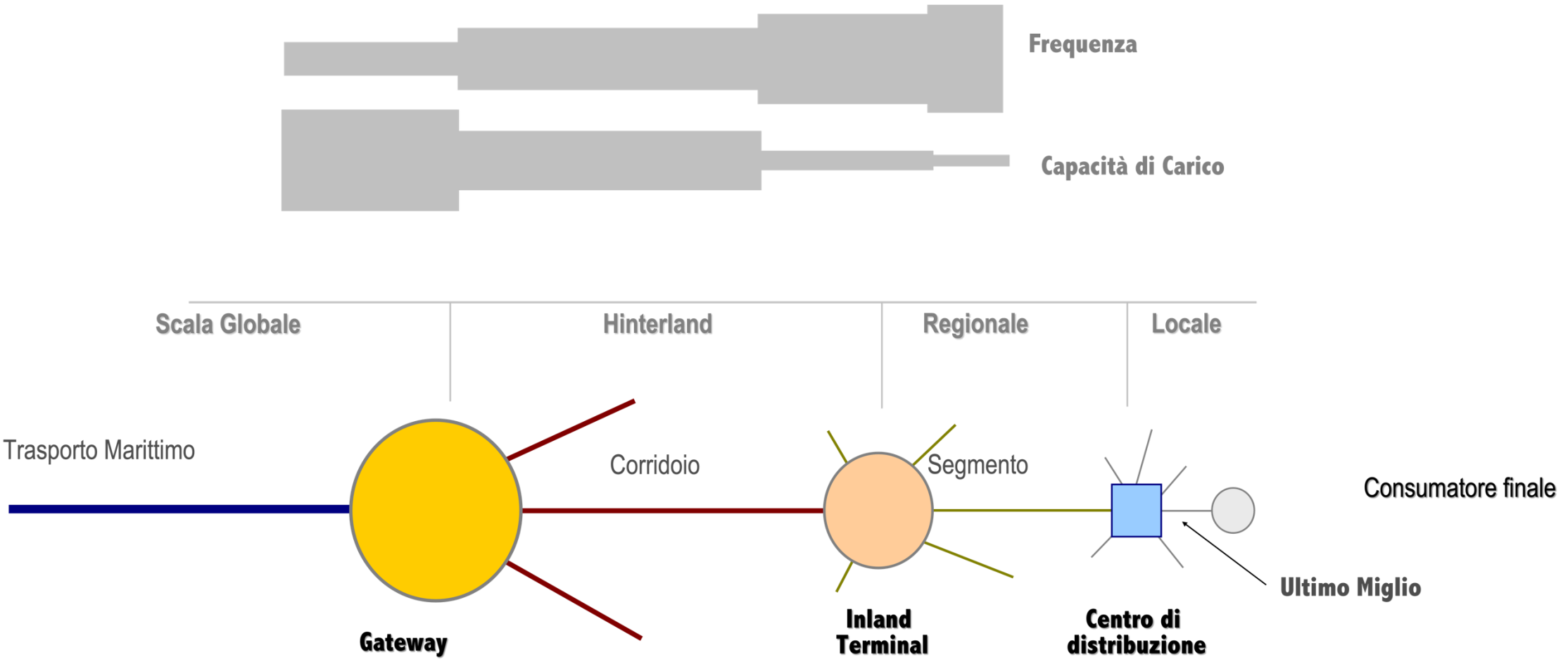




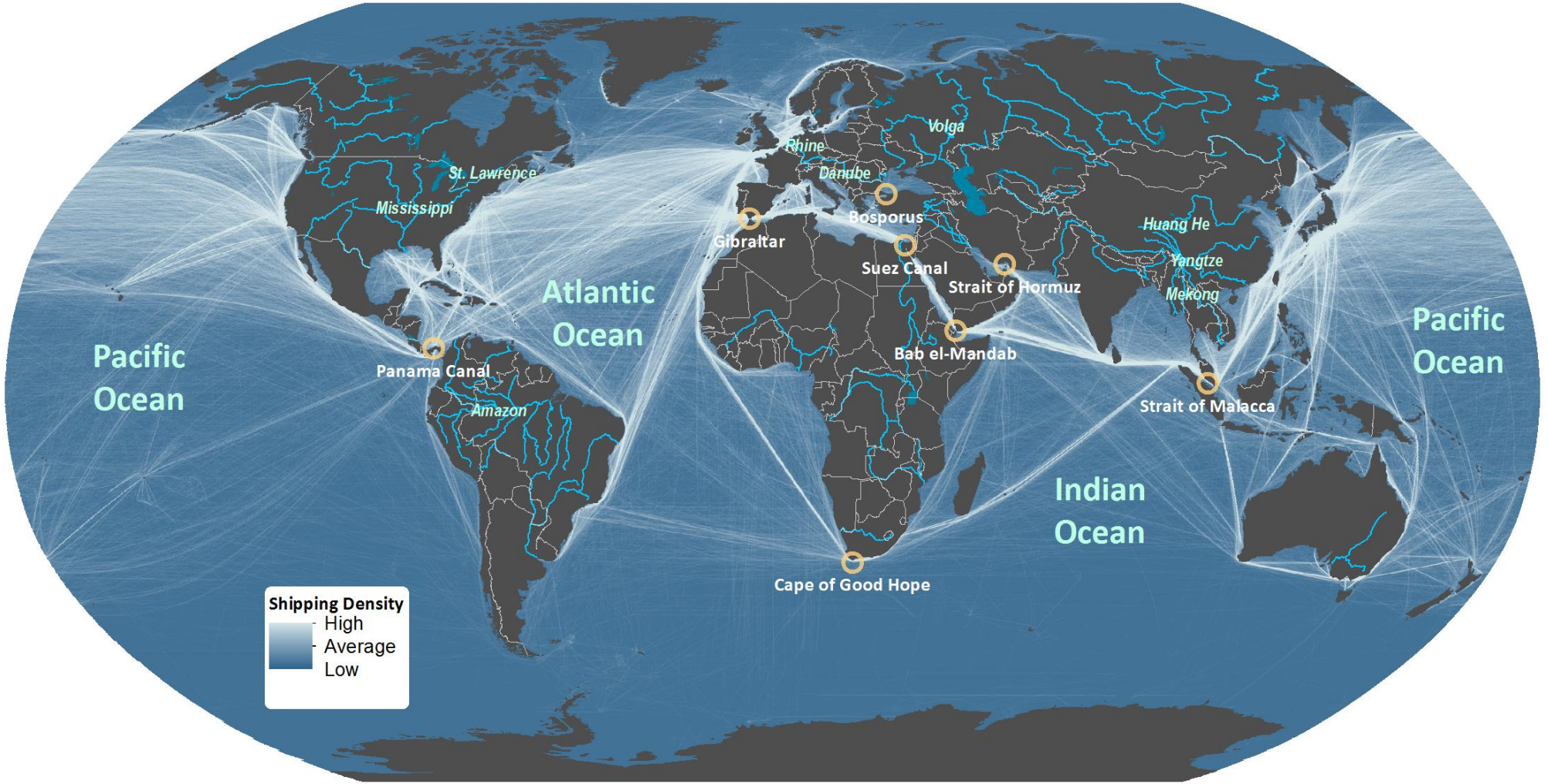
	GLOBAL	REGIONAL	LOCAL
Nodes	Gateways and hubs (airports and ports)	Metropolitan areas	Employment and commercial activities
Links	Air and maritime routes	Corridors (rail lines, highways, canals)	Roads and transit systems
Relations	Investment, trade and supply chains	Urban system and hinterland	Commuting and distribution

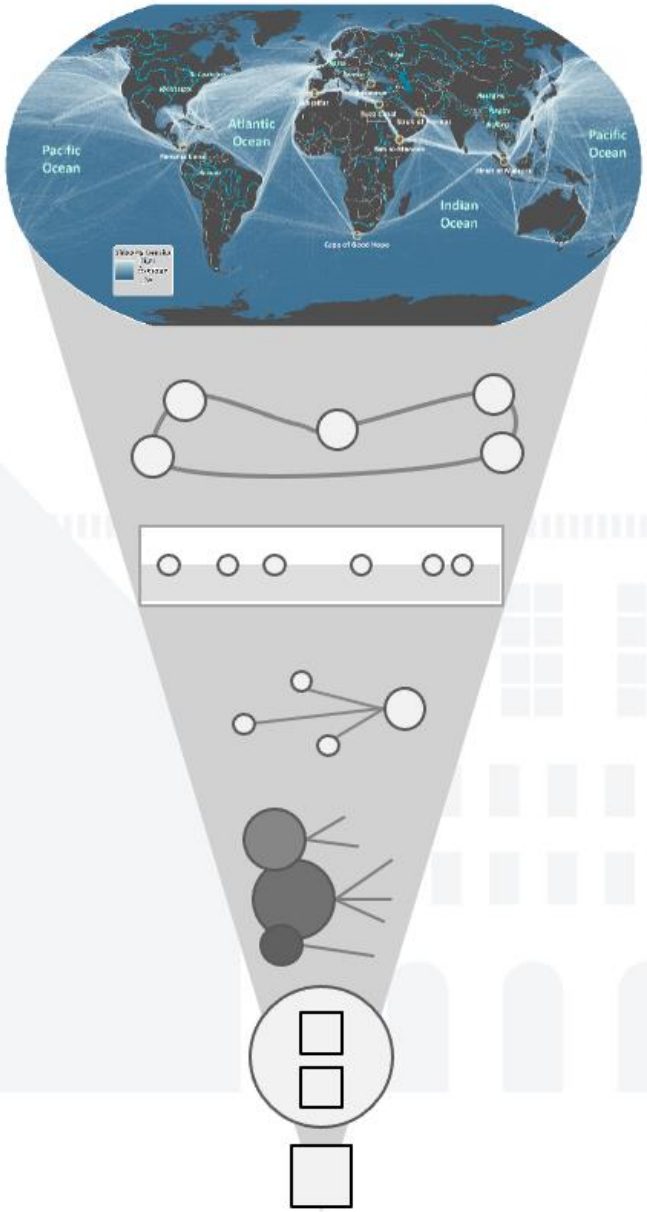
Source: J.-P. Rodrigue, The Geography of Transport Systems, 6th ed., Routledge – transportgeography.org (educational use) · «Scales of Spatial Organization for Transportation»

The geographical scales



The geographical scales





Globale

Global Maritime Transport System

Deep Sea Services

Maritime Range

Regionale

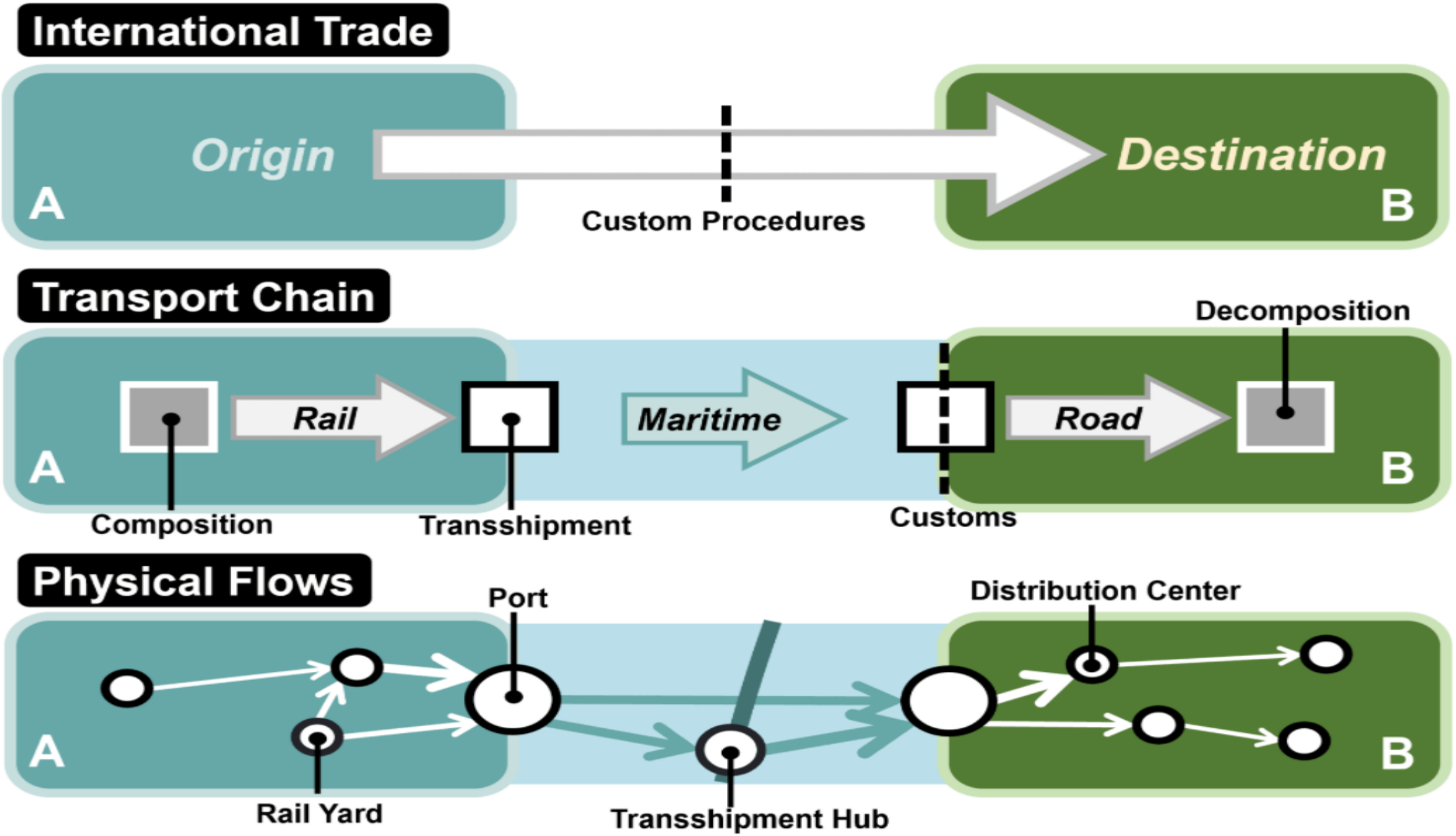
Short Sea / Feeder Services

Port Cluster / Regione / Hinterland

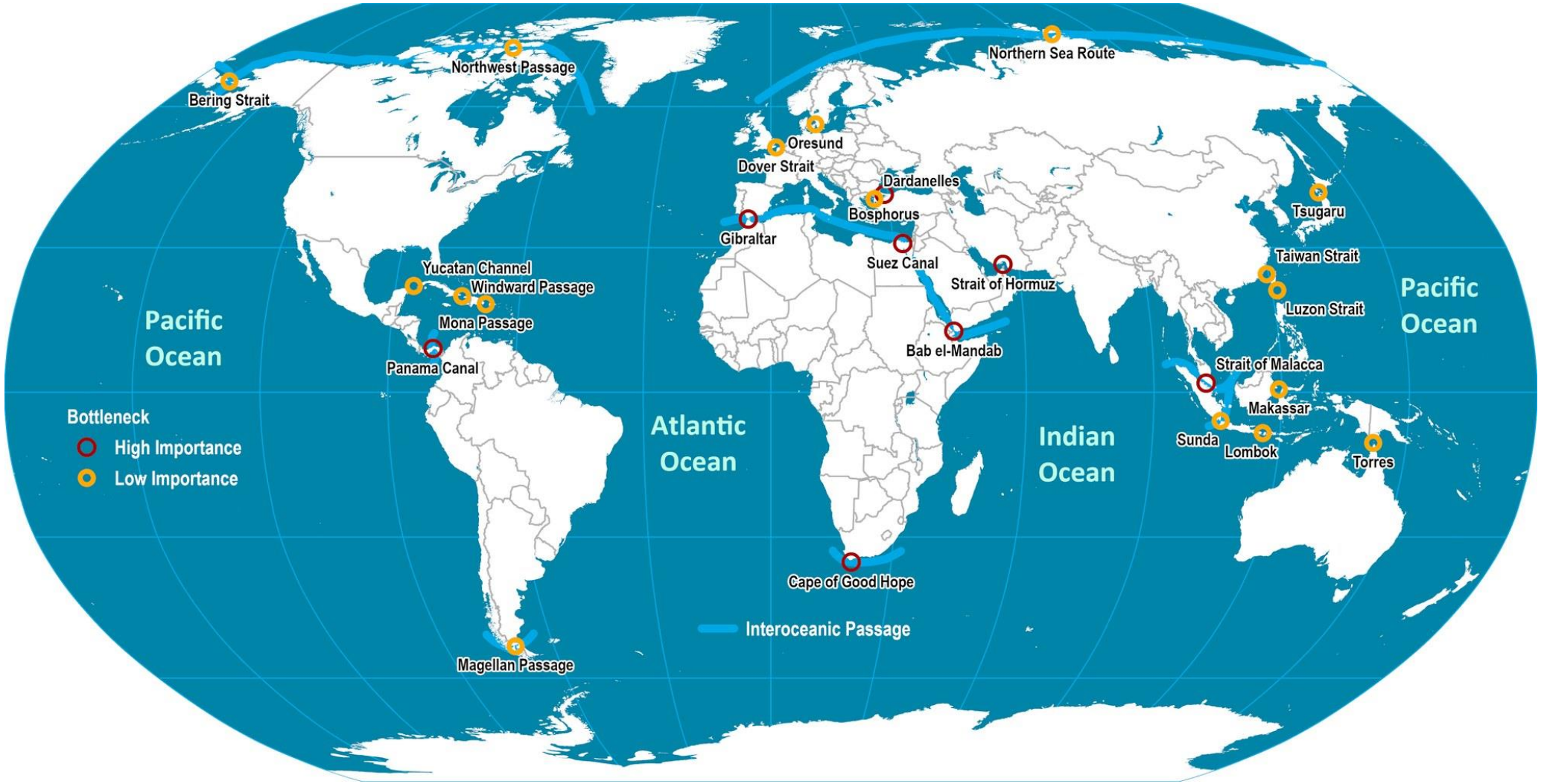
Locale

Porti

Terminal

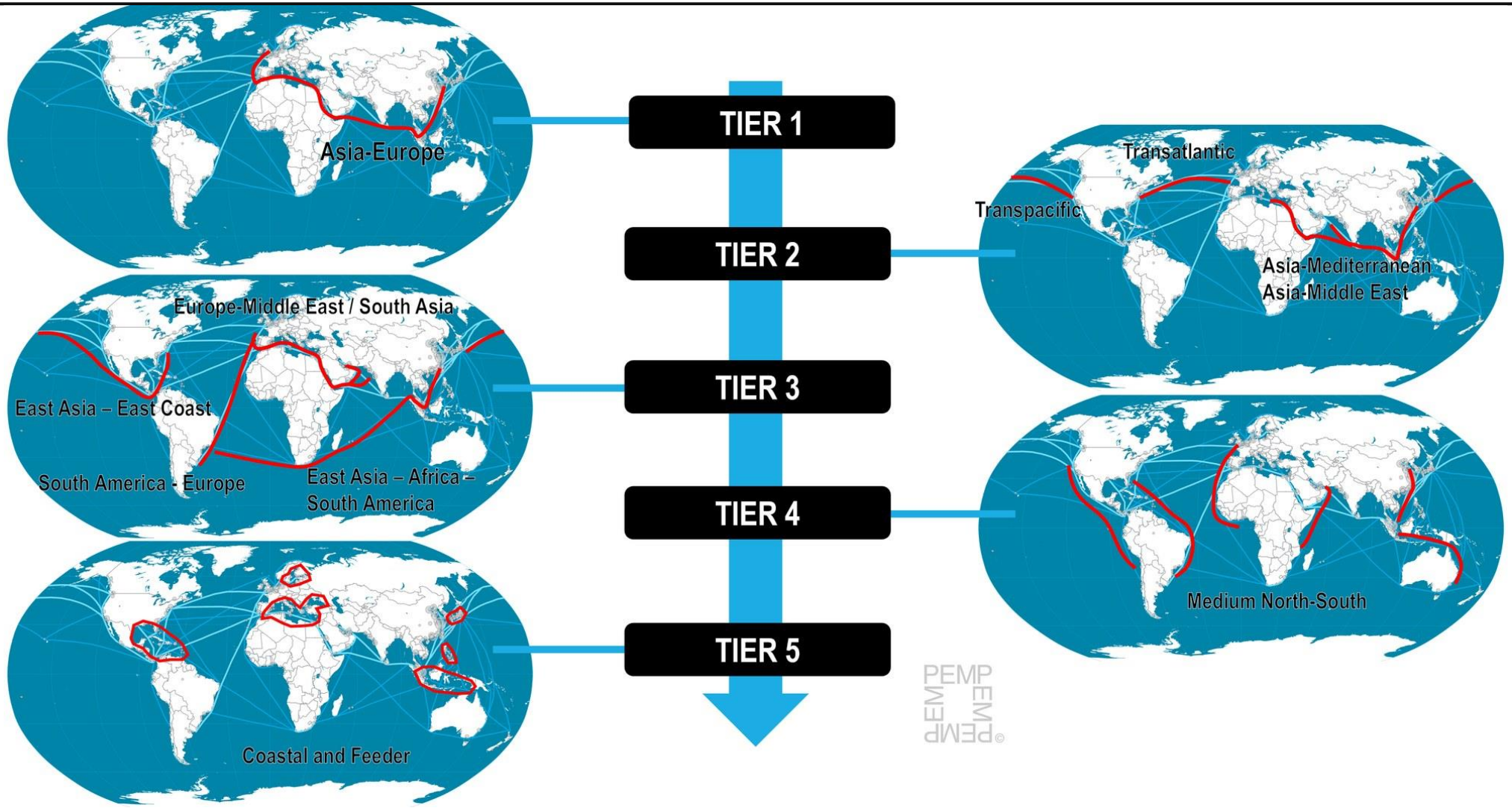

International Trade
Origin
A
Custom Procedures
Destination
B
Transport Chain
Decomposition
Rail
Maritime
Road
A
B
Composition
Transshipment
Customs
Physical Flows
Port
Distribution Center
A
B
Rail Yard
Transshipment Hub

The geographical space of maritime transport



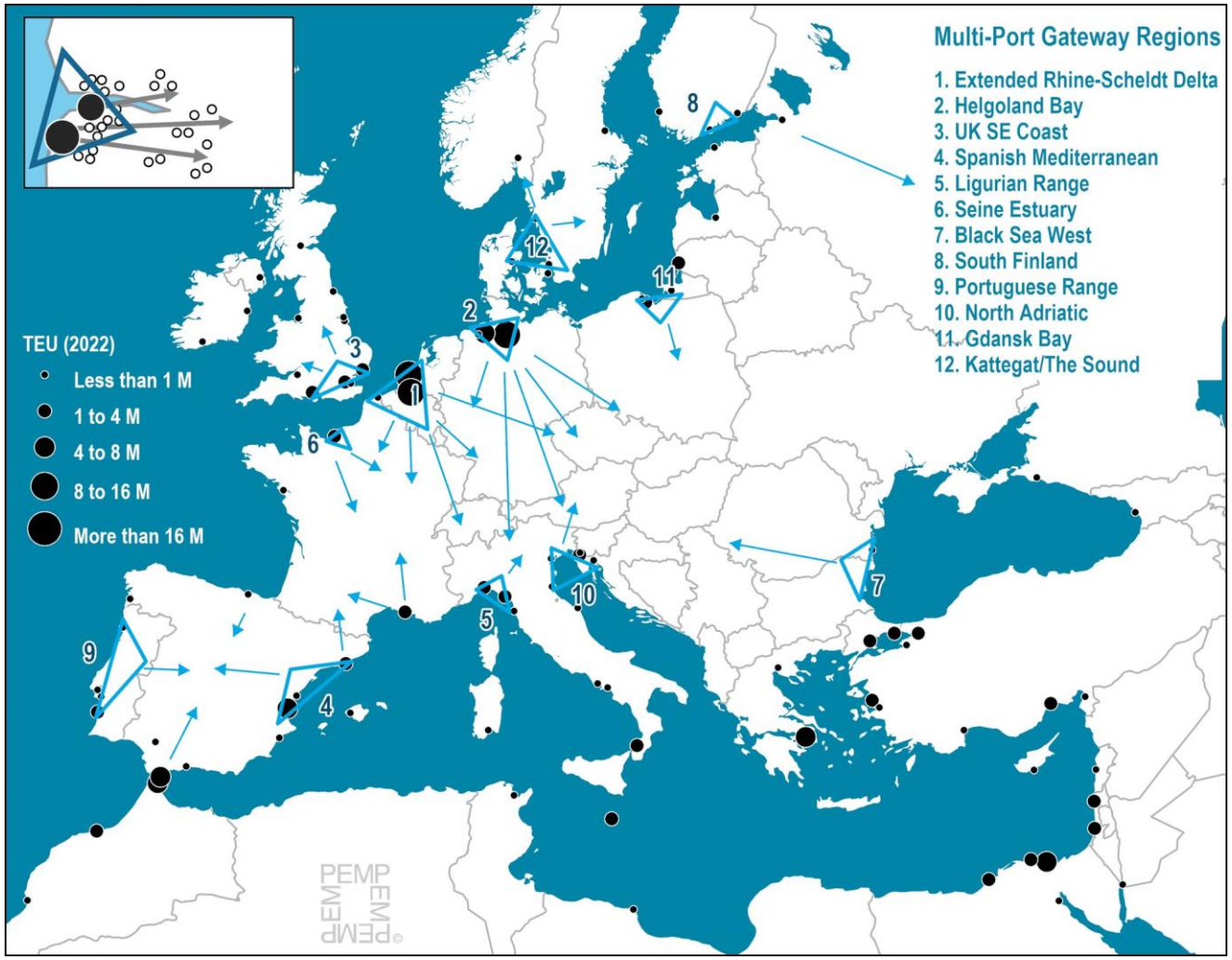
Source: J.-P. Rodrigue, The Geography of Transport Systems, 6th ed., Routledge – transportgeography.org (educational use) · «The Geographical Space of Maritime Transportation»

The global hierarchy of shipping lanes



Source: T. Notteboom, A. Pallis, J.-P. Rodrigue, Port Economics, Management and Policy, Routledge – porteconomicsmanagement.org (educational use) · «Global Hierarchy of Shipping Lanes»

The European port system and its gateway regions



Source: Adapted from J.-P. Rodrigue, T. Notteboom (2010), Journal of Transport Geography, 18(4); map from PEMP (educational use)

Three scales of maritime transport

	Global scale	Regional scale	Local scale
Space	Oceans and intercontinental routes	Seas and maritime ranges (Mediterranean, North Sea, Baltic)	Port, terminals, port city, immediate hinterland
Services	Deep-sea liner services, bulk voyages	Short sea shipping, feeders, ro-ro, ferries, Motorways of the Sea	Port operations, drayage, rail and barge shuttles
Ships	Megamax container ships, Capesize, VLCC	Feeders (1,000-3,000 TEU), ro-ro and ferries	Tugs, barges, service vessels
Main actors	Carriers and alliances, global terminal operators, traders	Feeder and ferry operators, port systems, EU	Port authorities, terminal operators, municipalities, workers, residents
Rules	IMO, UNCLOS, WTO	EU (TEN-T, ETS, cabotage), regional agreements	National port law, planning, environmental rules
Example	Asia-North Europe loop of 24,000 TEU ships	Grimaldi ro-ro lines in the Mediterranean	Port of Venice and its lagoon

Source: lecturer's elaboration on J.-P. Rodrigue (2024) and T. Notteboom, A. Pallis, J.-P. Rodrigue (2022)

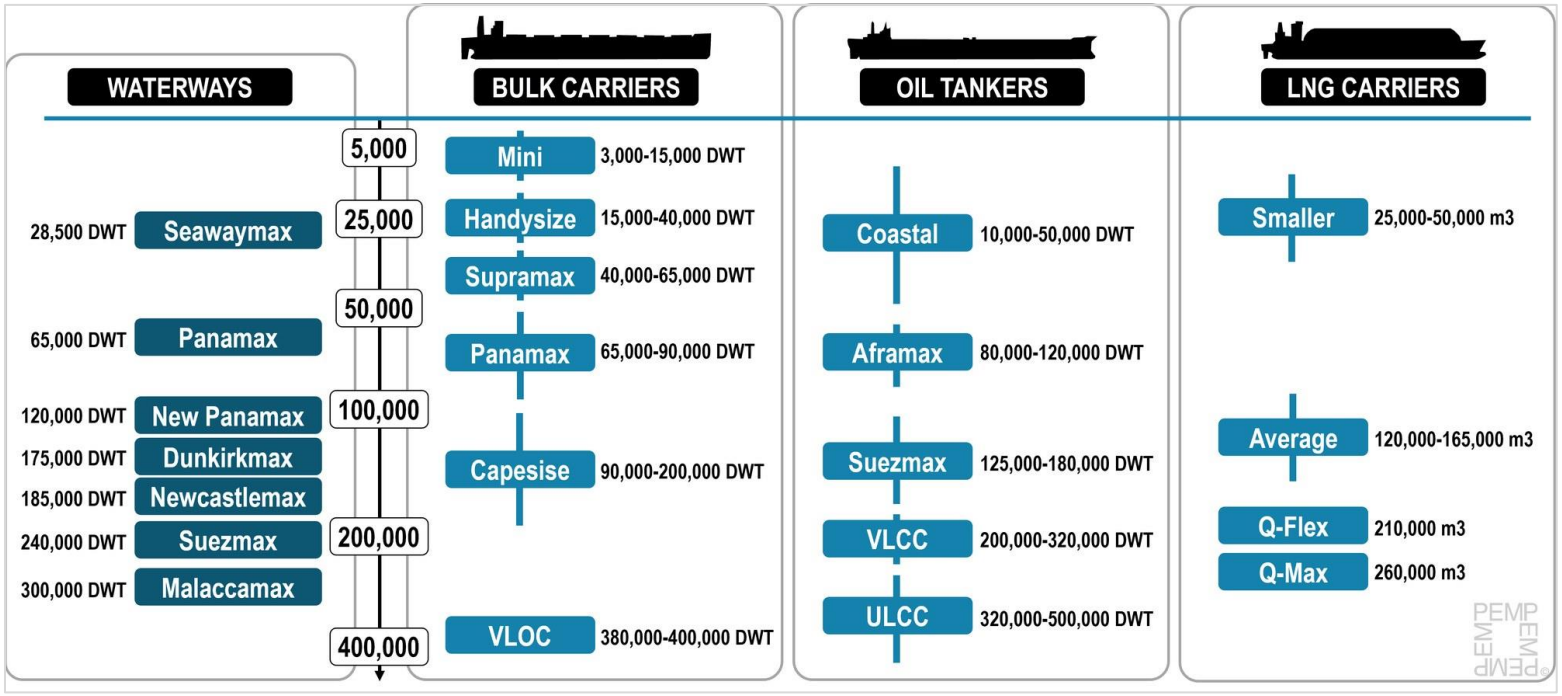
The regional scale: short sea shipping in Europe

Short sea shipping is maritime transport between ports of the same continent or region, without crossing an ocean. In Europe it carries a large share of intra-EU freight.

- **What it includes**: container feeders linking hubs to smaller ports, ro-ro lines for trucks and trailers, ferries, regional bulk traffic.
- **Motorways of the Sea**: since 2004 the EU has funded maritime links integrated into the TEN-T network, to move trucks from congested roads to ships (the Mediterranean is a key area).
- **Regional systems**: in the Mediterranean, transshipment hubs (Gioia Tauro, Malta, Tanger Med, Algeciras, Port Said, Piraeus) feed smaller ports through hub-and-spoke networks.

Source: European Commission, TEN-T and Motorways of the Sea; Eurostat; T. Notteboom, A. Pallis, J.-P. Rodrigue (2022)

Bulk ship classes: named after the passages they fit



1. Bulk carriers, oil tankers and LNG carriers are classified by size in deadweight tonnes (dwt) or cubic metres.

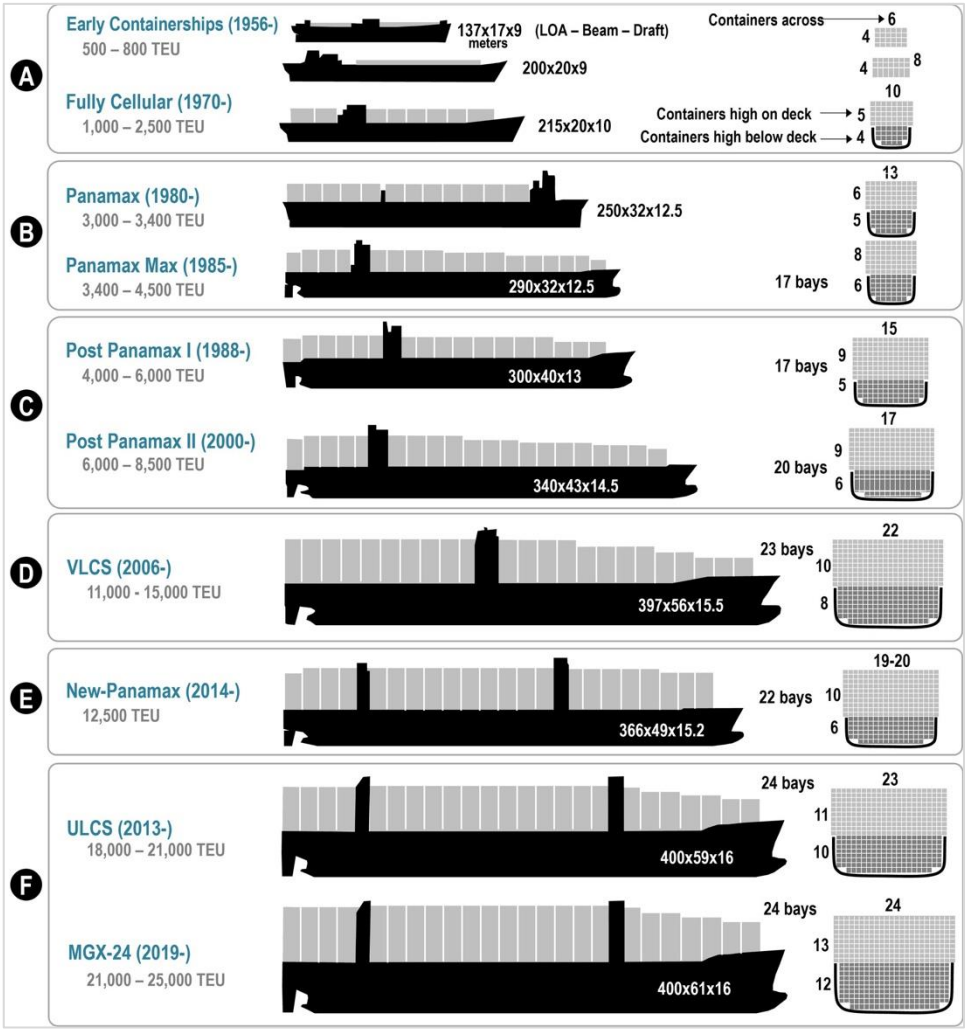
2. Many classes take their name from a **passage**: **Panamax** (about 65,000 dwt, old Panama locks), **New Panamax** (120,000 dwt, new locks of 2016), **Suezmax** (about 240,000 dwt), **Malaccamax** (about 300,000 dwt).

3. Capesize ships are too large for the canals and must sail around the Cape of Good Hope or Cape Horn; **Seawaymax** ships fit the St Lawrence Seaway.

4. It should be pointed out that physical geography is written into the design of ships: the size of a canal or the depth of a strait sets the limits of the fleet.

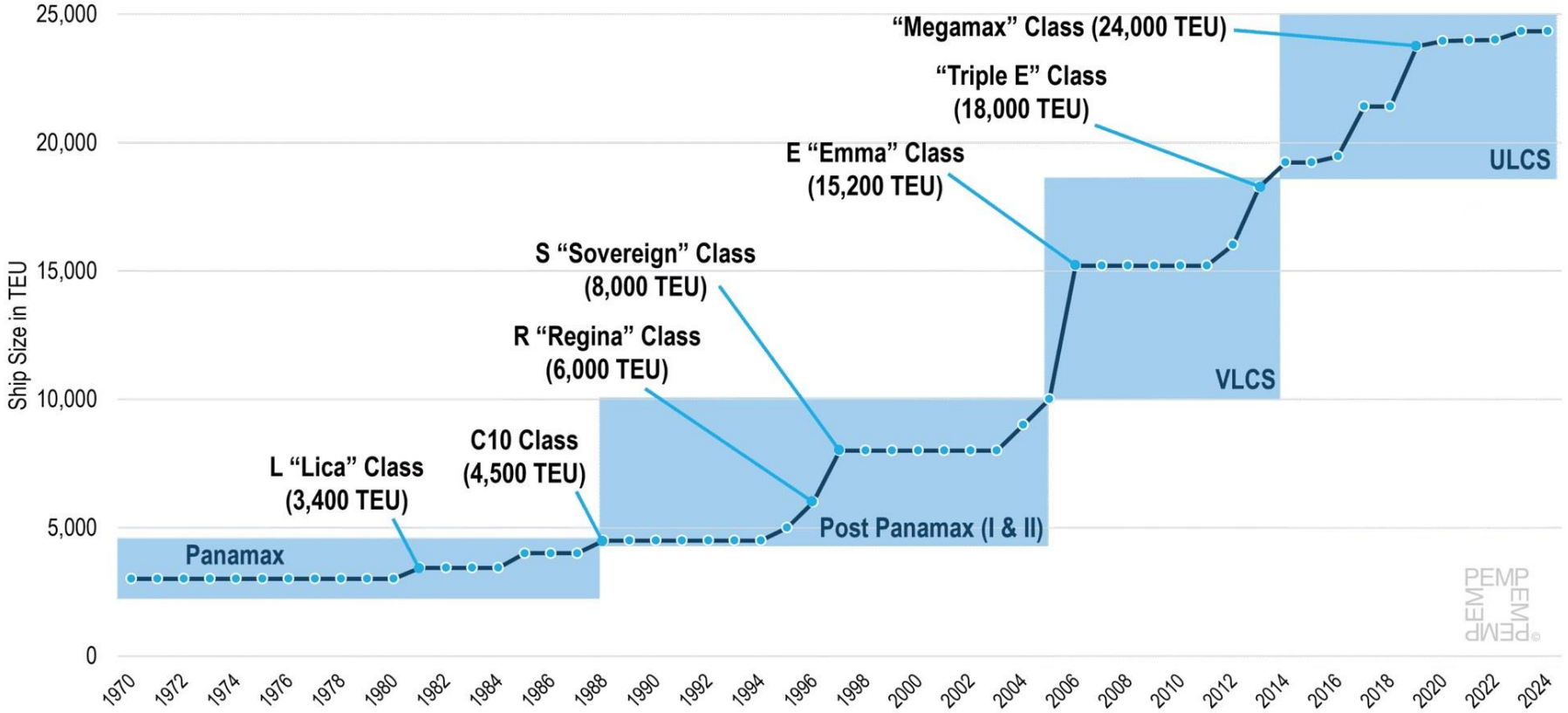
Source: T. Notteboom, A. Pallis, J.-P. Rodrigue, Port Economics, Management and Policy, Routledge – porteconomicsmanagement.org (educational use) · «Bulk Ship Classes»

The evolution of container ships, 1956-2020s



Source: J.-P. Rodrigue, The Geography of Transport Systems, 6th ed., Routledge – transportgeography.org (educational use) · «Evolution of Containerships»

The largest available container ship, 1970-2024



Source: T. Notteboom, A. Pallis, J.-P. Rodrigue, Port Economics, Management and Policy, Routledge – porteconomicsmanagement.org (educational use) · «The Largest Available Containership, 1970-2024 (in TEUs)»

The geography of a ship's life cycle

Stage	Leading countries	Data
Building	China, South Korea, Japan	China won **63%** of new orders in 2025 (35.4 million CGT), South Korea **21%** (Clarksons)
Owning	Greece, China, Japan	Greek owners control **16.4%** of world tonnage, Chinese 14.4%, Japanese 9.9% (1 January 2025)
Flagging	Liberia, Panama, Marshall Islands	The three «open registries» flag **45%** of world tonnage: 17.4%, 15.2% and 12.5%
Operating	Switzerland, Denmark, France, China	MSC, Maersk, CMA CGM and COSCO operate **59%** of world container capacity
Crewing	Philippines, India, Indonesia, China	The main suppliers of seafarers to the world fleet
Recycling	Bangladesh, India, Pakistan	About **85%** of the tonnage scrapped in 2025 was dismantled on three South Asian beaches (214 of 321 ships)

«Flags of convenience» (open registries) offer low taxes, low costs and lighter rules to foreign owners. The IMO Hong Kong Convention on ship recycling entered into force on 26 June 2025, but beaching remains allowed.

Source: UNCTAD, Review of Maritime Transport 2025; Clarksons via SteelOrbis (2026); Alphaliner (November 2026); NGO Shipbreaking Platform via Marine Insight (6 February 2026)

The end of a ship: recycling methods



Ships are usually scrapped after **20-32 years**, earlier when freight rates are low and owners prefer to sell them for steel.

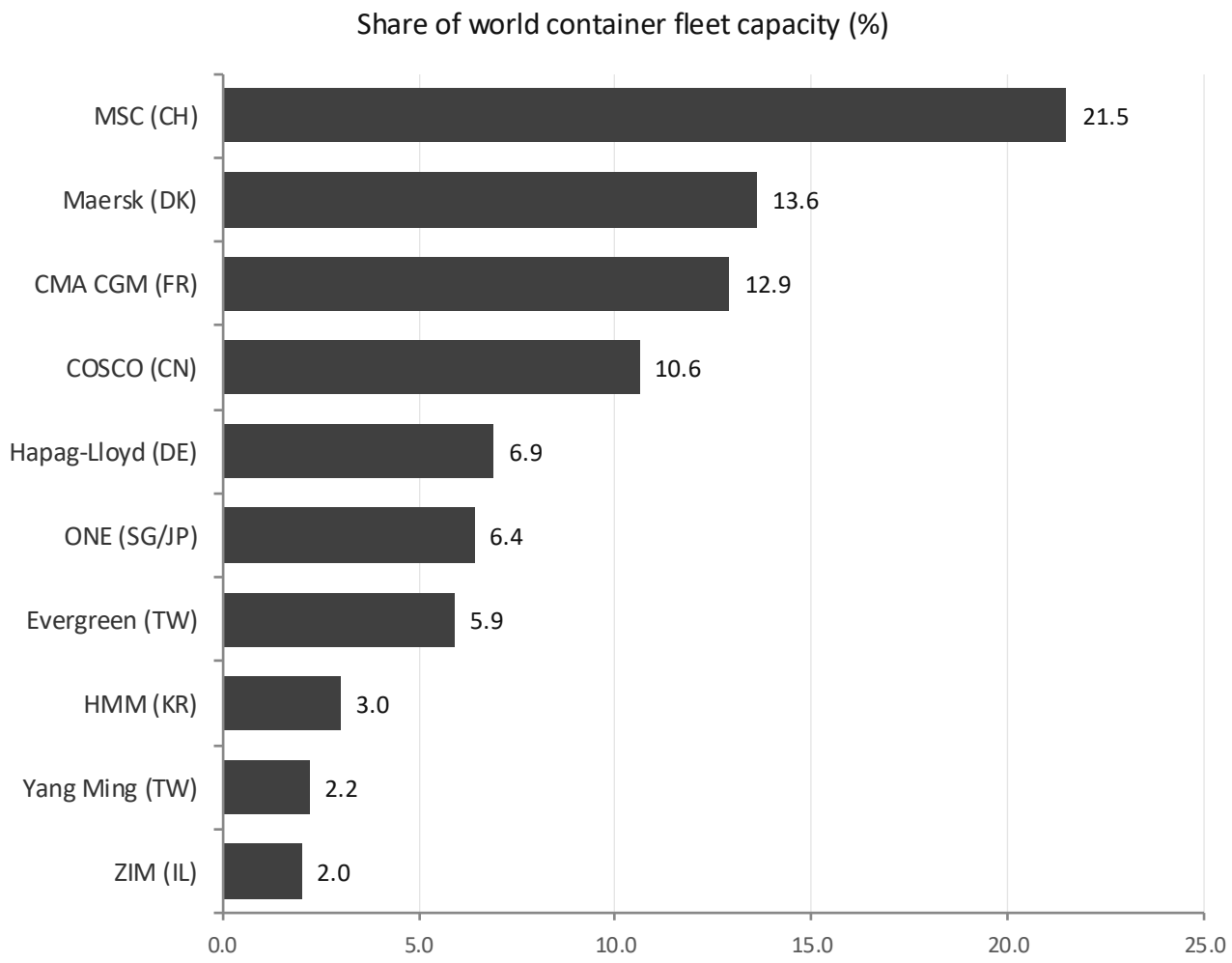
Dry docking and **pier breaking** (Europe, Turkey, China) allow control of pollution and worker safety.

Landing on a slipway is an intermediate method.

Beaching, used in Alang (India), Chittagong (Bangladesh) and Gadani (Pakistan), runs ships aground at high tide and dismantles them on the sand: cheap, but with high risks for workers and coasts. It should be pointed out that the end of the ship's life cycle is located where labour is cheapest and rules are weakest.

Source: Adapted from OECD (2019), Ship recycling: an overview; figure from PEMP (educational use)

The largest container carriers (November 2026)



Container shipping is a highly **concentrated** industry: the top five carriers operate about **65%** of world capacity, the top ten about **85%** (35 million TEU in total).

MSC, a family company based in Geneva, has been the largest carrier since 2022 and keeps growing, with 7.5 million TEU.

Concentration came through mergers and acquisitions after the 2008 crisis and the Hanjin bankruptcy (2016).

We can note the geography of headquarters: Europe still controls the three largest carriers, East Asia most of the others.

Source: Alphaliner Top 100 (9 November 2026), via El Estrecho Digital

Alliances in container shipping after 2025

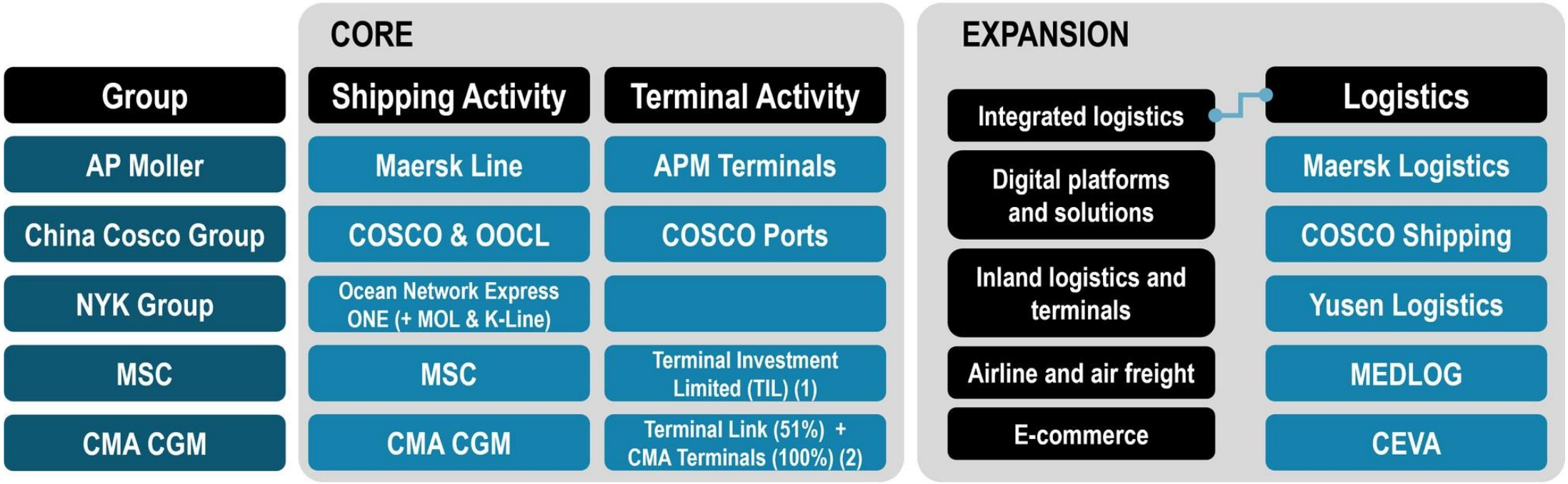
Carriers share ships and slots on the main East-West routes through **alliances**, operational agreements that replaced the old price-fixing **conferences**. A new configuration started in February 2025.

Alliance / carrier	Members	Features
Gemini Cooperation	Maersk, Hapag-Lloyd	From 1 February 2025; a hub-and-spoke network built on a few hubs, aiming at over 90% schedule reliability
Premier Alliance	ONE, HMM, Yang Ming	Successor of THE Alliance; cooperates with MSC on Asia-North Europe
Ocean Alliance	CMA CGM, COSCO (with OOCL), Evergreen	The largest alliance; agreement extended to 2032
MSC	Stand-alone	After the end of the 2M alliance with Maersk (January 2025) it operates alone, with its own large network

The EU did not renew its block exemption for shipping consortia, which expired on 25 April 2024: alliances now fall under ordinary competition law.

Source: T. Notteboom, PEMP (2025); European Commission; company announcements

Vertical integration of the largest carriers



Past: Waves in logistics integration (invest vs. divest) with continued interest in terminals
Present: Transition from carrier to logistics integrator; large differences among carriers remain

(1) Fully owned by MSC till 2013, stake brought to 60% in May 2019. Other shareholders are Global Infrastructure Partners (GIP) and GIC Private Limited, a Singaporean Sovereign Wealth Fund.
(2) Terminals controlled by CMA Terminals were transferred to Terminal Link in late 2019.

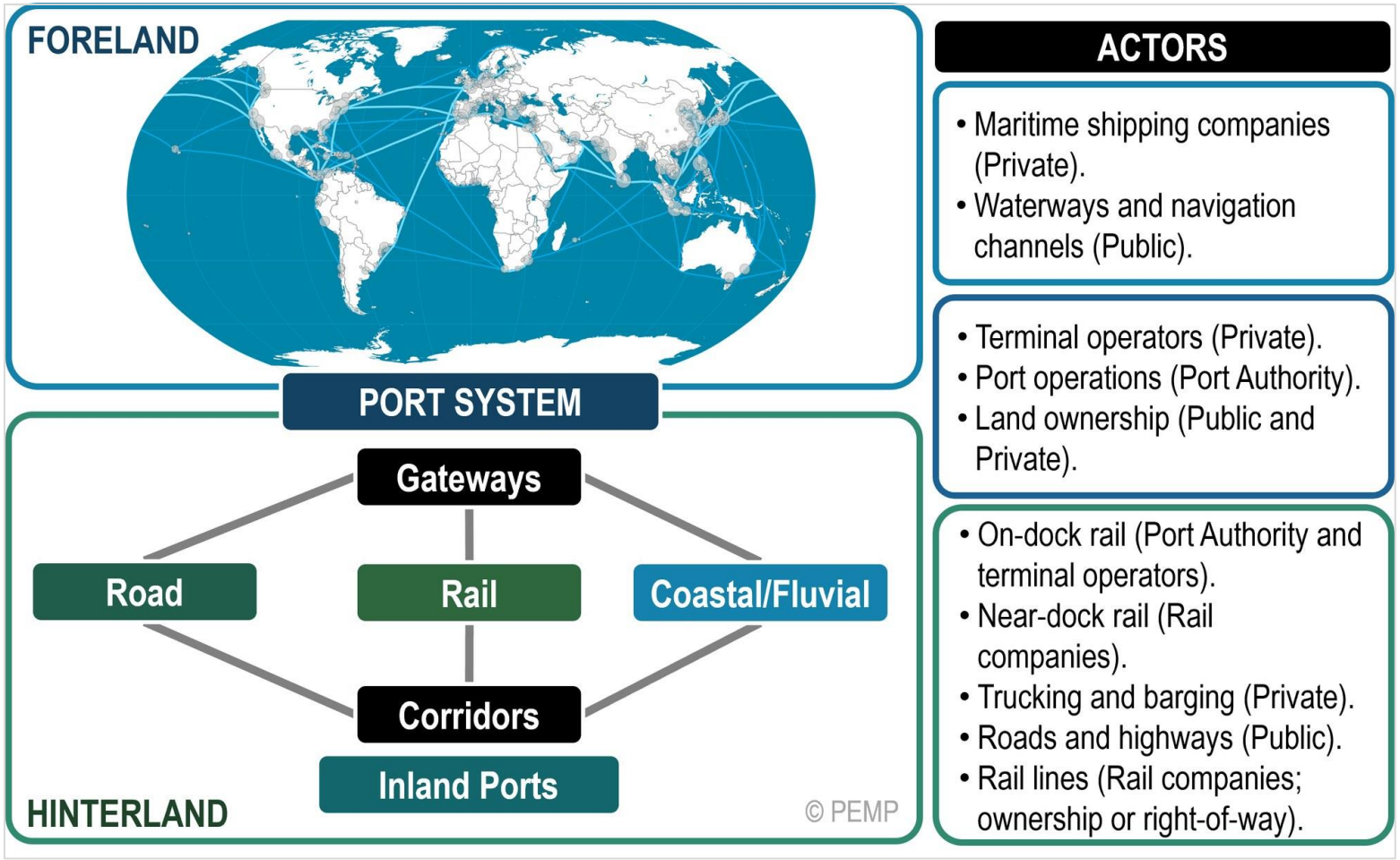
PEMP ©

Source: T. Notteboom, A. Pallis, J.-P. Rodrigue, Port Economics, Management and Policy, Routledge – porteconomicsmanagement.org (educational use) · «Vertical Integration for Selected Major Container Shipping Lines»

Foreland and hinterland

A port faces two ways: towards the sea, where its foreland lies, and towards the land, where its hinterland lies. The two concepts describe the spatial reach of a port and the competition between ports.

The maritime-land interface



The diagram reads from top to bottom: the **foreland** (the world of maritime routes), the **port system**, the **hinterland**.

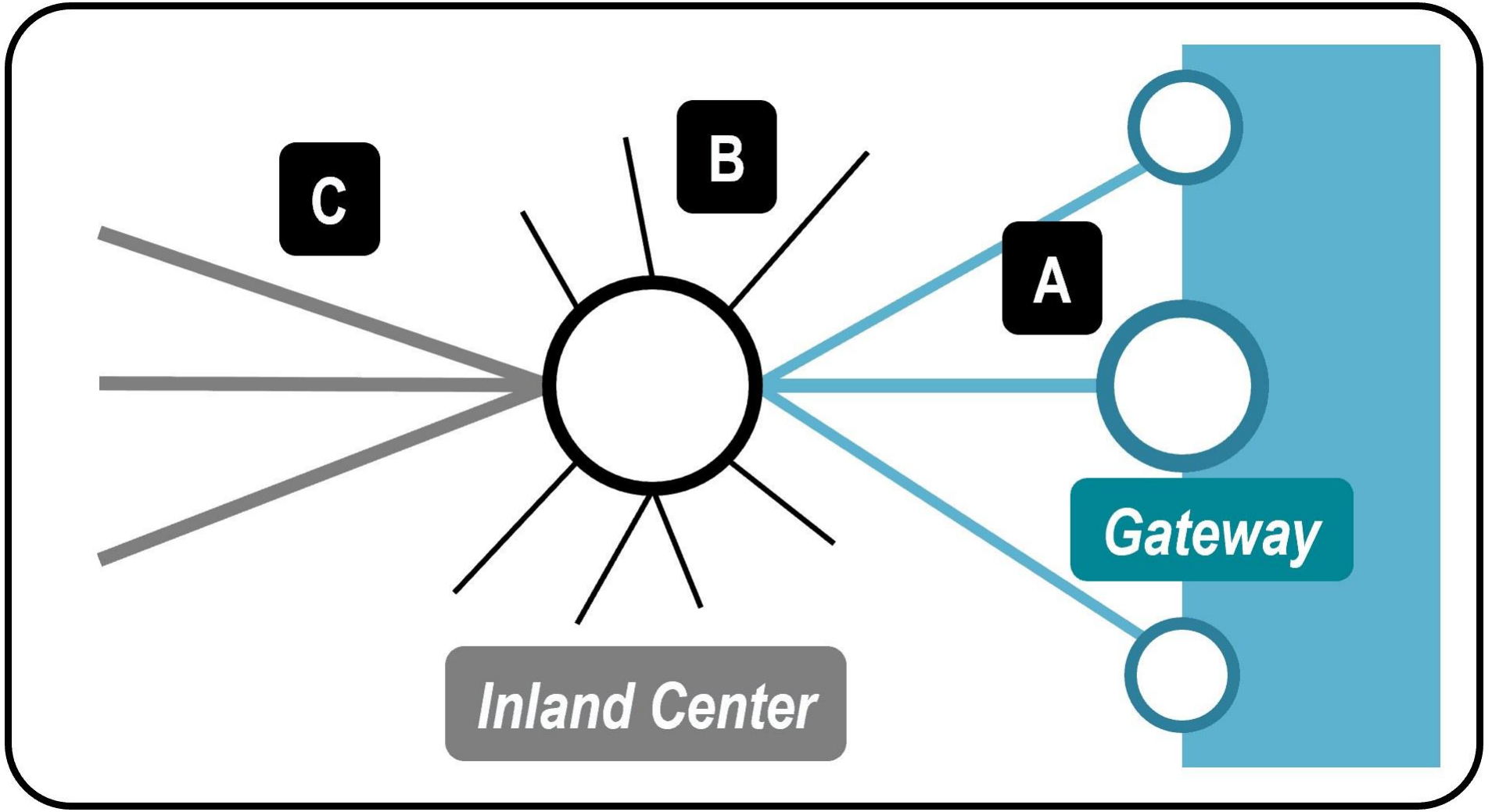
Within the port system, **gateways** connect to the hinterland by road, rail and coastal or fluvial transport; **corridors** link them to **inland ports**.

The panel on the right lists the **actors** of each level, private and public: shipping companies and navigation channels; terminal operators, port authorities and landowners; rail companies, truckers, barge operators and the owners of roads and rail lines.

The foreland and hinterland are two halves of the same system, managed by different actors: a port without hinterland access cannot attract services, and a port without services cannot reach far into its hinterland.

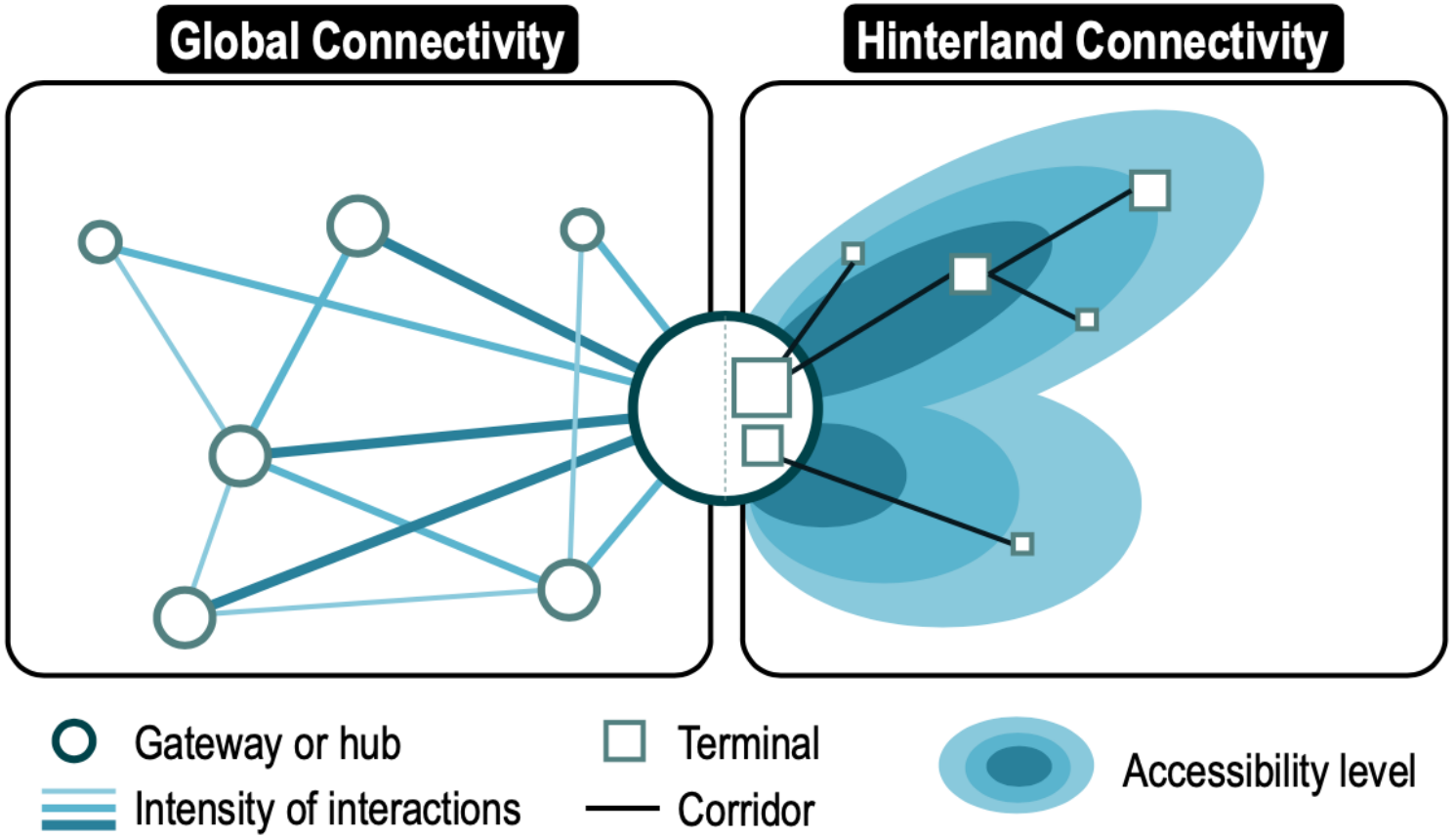
Source: T. Notteboom, A. Pallis, J.-P. Rodrigue, Port Economics, Management and Policy, Routledge – porteconomicsmanagement.org (educational use) · «Elements of the Maritime / Land Interface»

Hinterland connectivity of a gateway



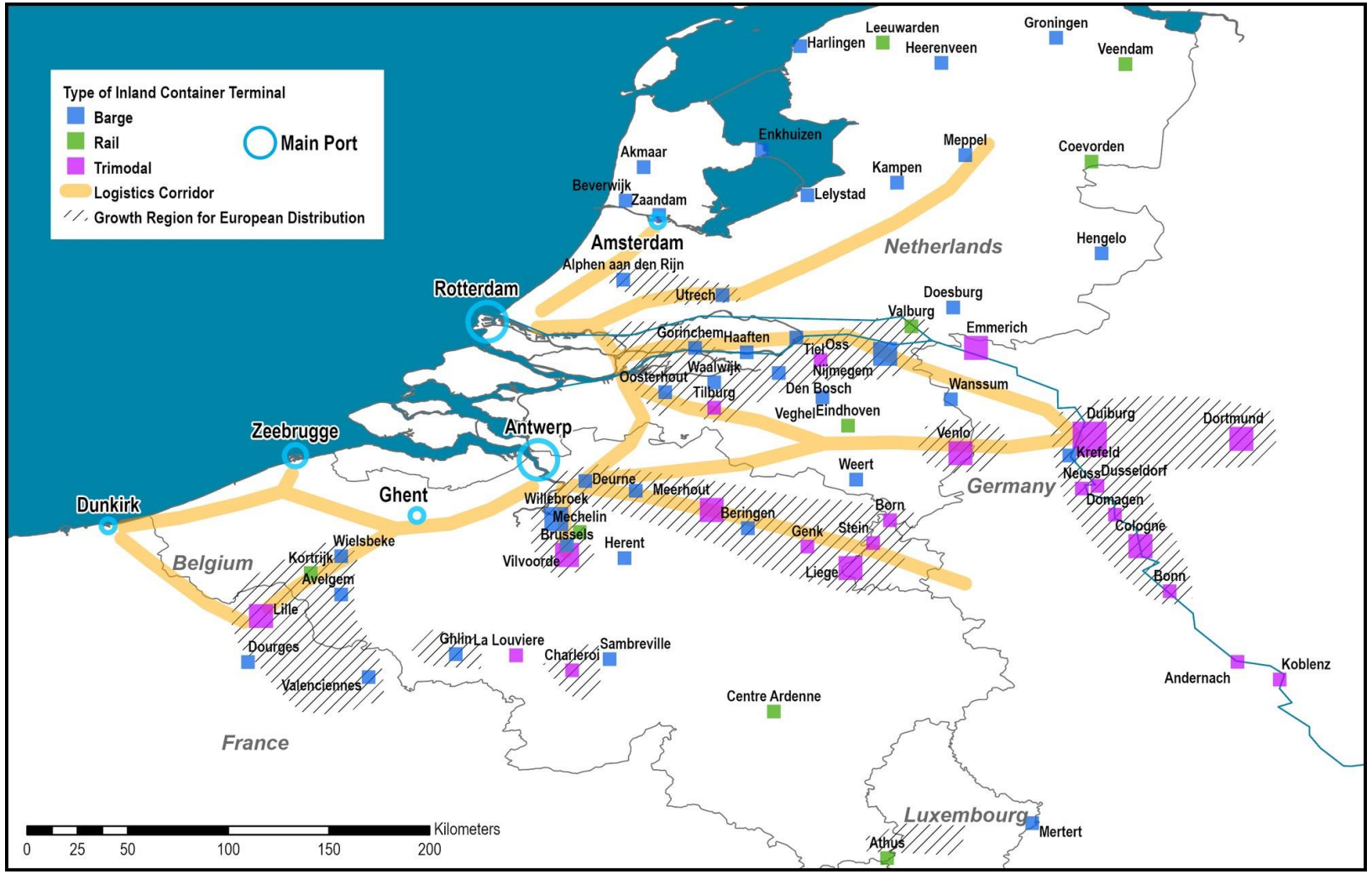
Source: J.-P. Rodrigue, The Geography of Transport Systems, 6th ed., Routledge – transportgeography.org (educational use) · «Types of Hinterland Connectivity»

Hinterland connectivity of a gateway



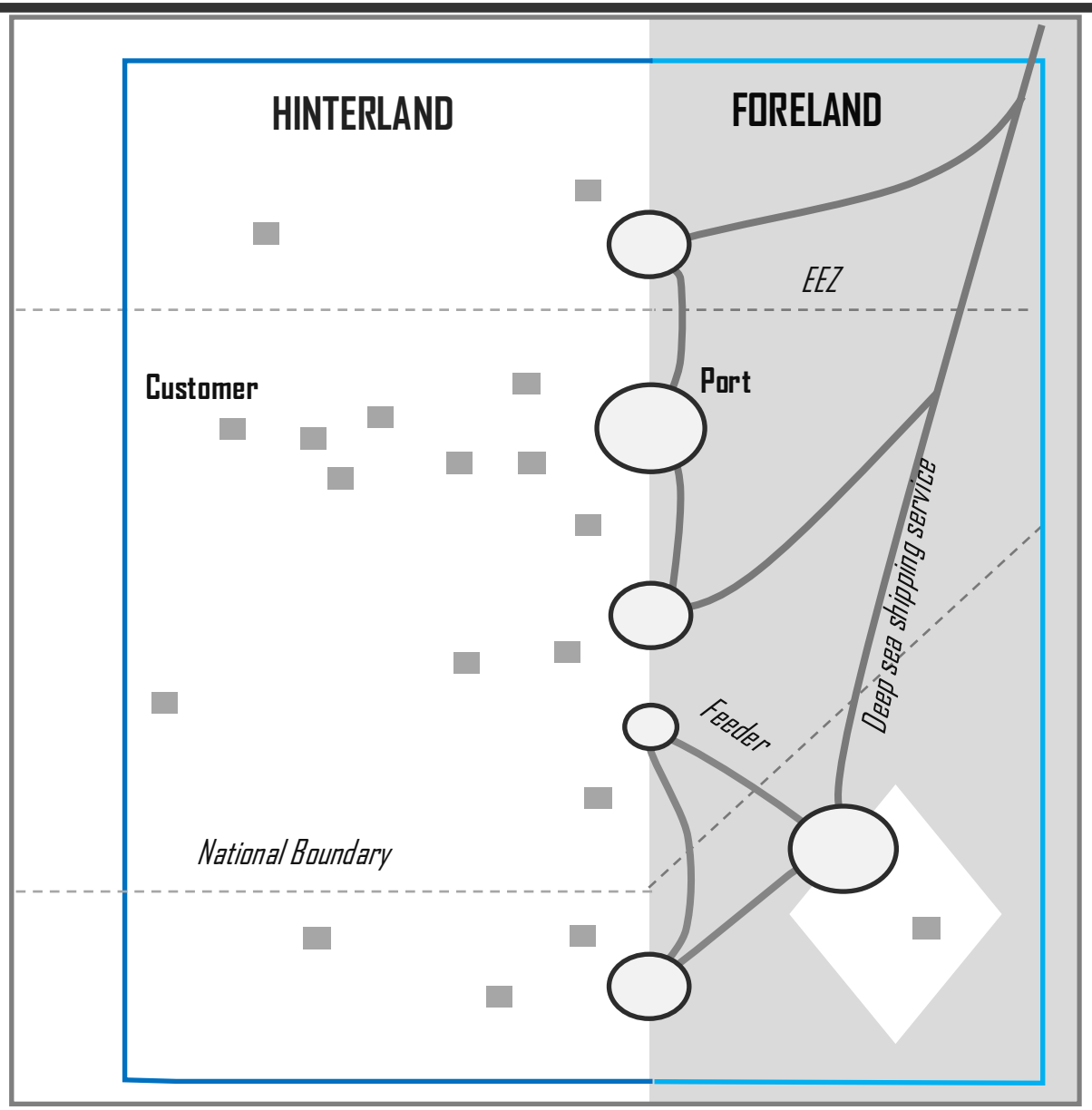
Source: J.-P. Rodrigue, The Geography of Transport Systems, 6th ed., Routledge – transportgeography.org (educational use) · «Types of Hinterland Connectivity»

The Rhine-Scheldt delta and its inland ports



Source: T. Notteboom, A. Pallis, J.-P. Rodrigue, Port Economics, Management and Policy, Routledge – porteconomicsmanagement.org (educational use) · «Inland Ports and Logistics Zones Around the Rhine / Scheldt Delta»

Hinterland and foreland

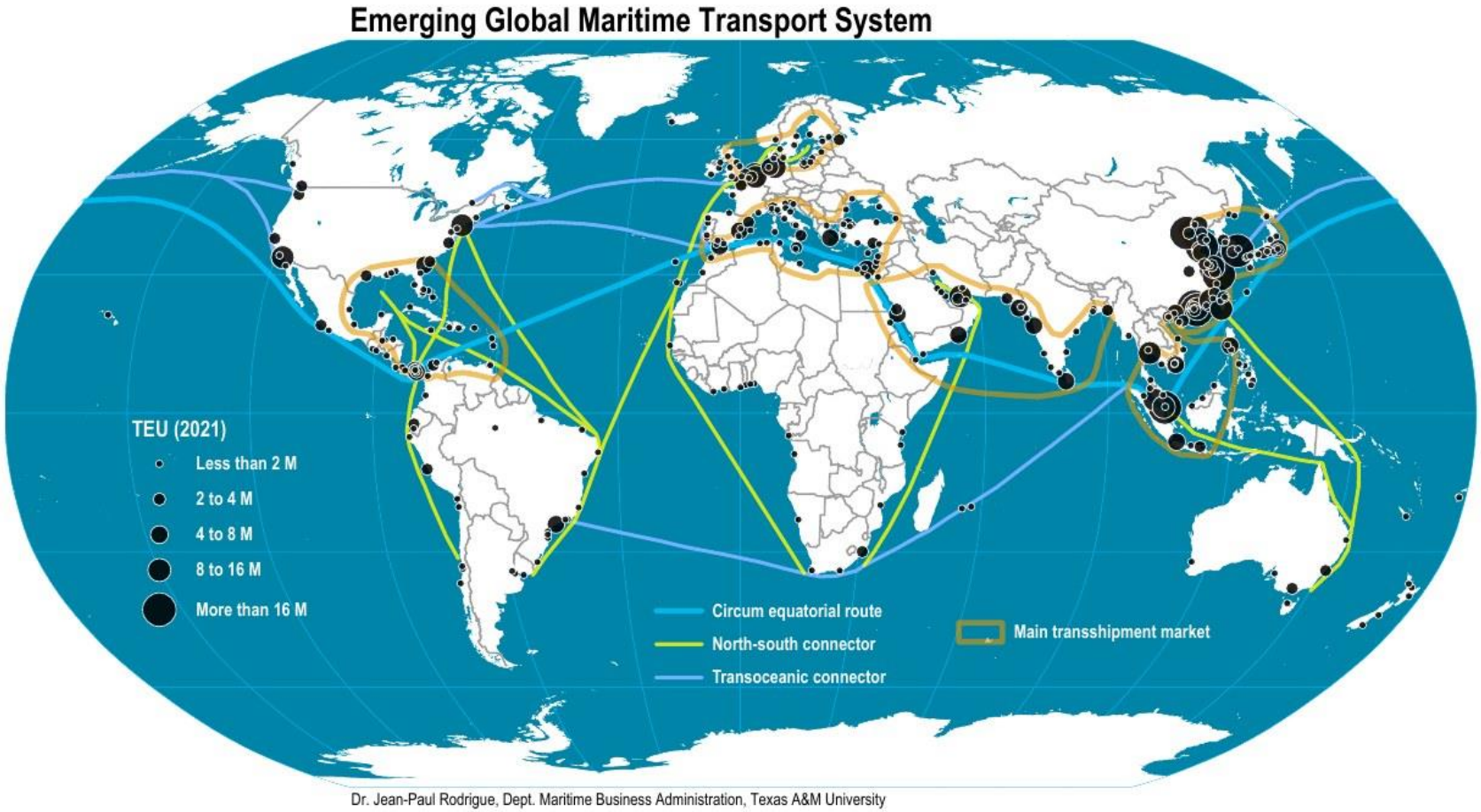


Source: T. Notteboom, A. Pallis, J.-P. Rodrigue, Port Economics, Management and Policy, Routledge – porteconomicsmanagement.org (educational use) · «Inland Ports and Logistics Zones Around the Rhine / Scheldt Delta»

Maritime routes

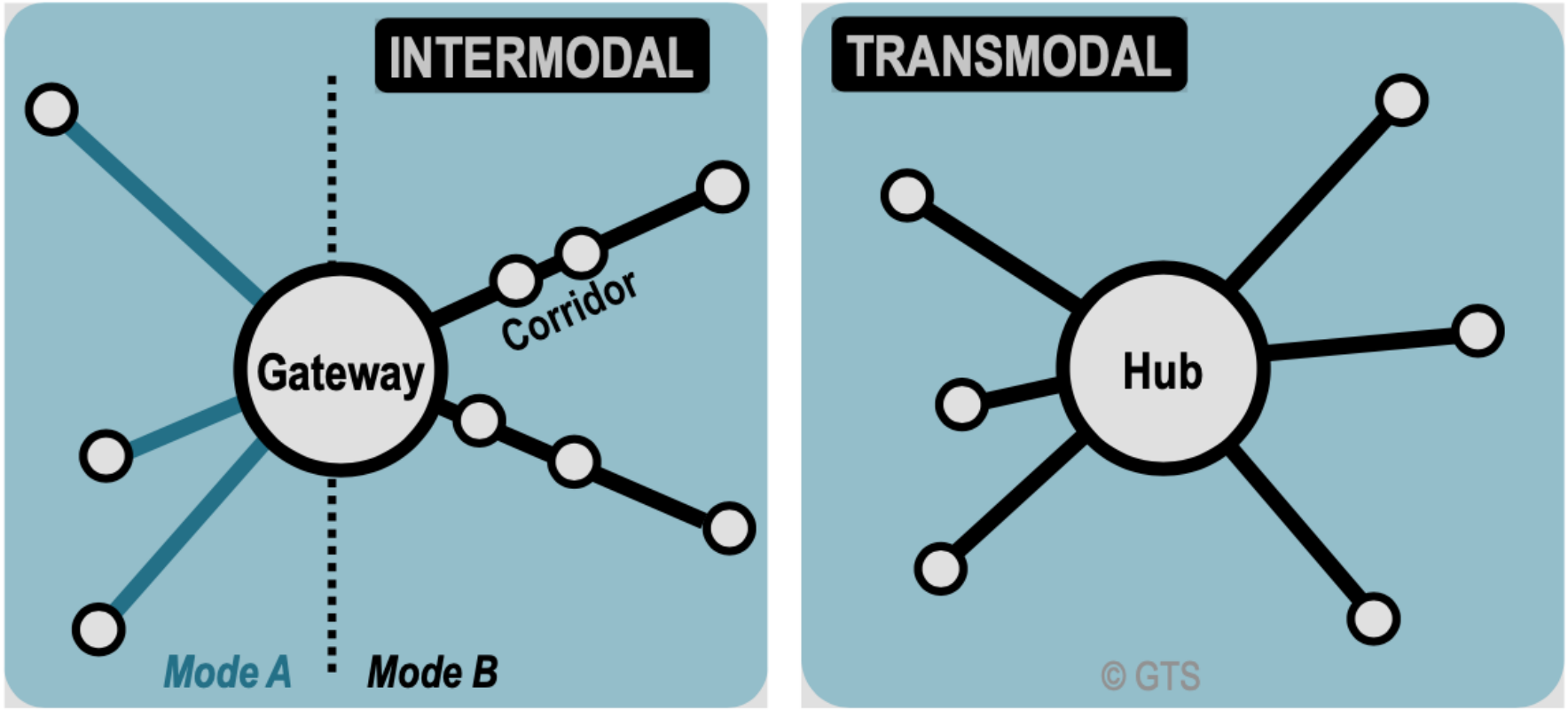
The sea has no roads, yet ships follow a small number of routes. Physical geography, political rules, canals and the strategies of carriers concentrate traffic along a few corridors and through a few passages.

The emerging global maritime transport system



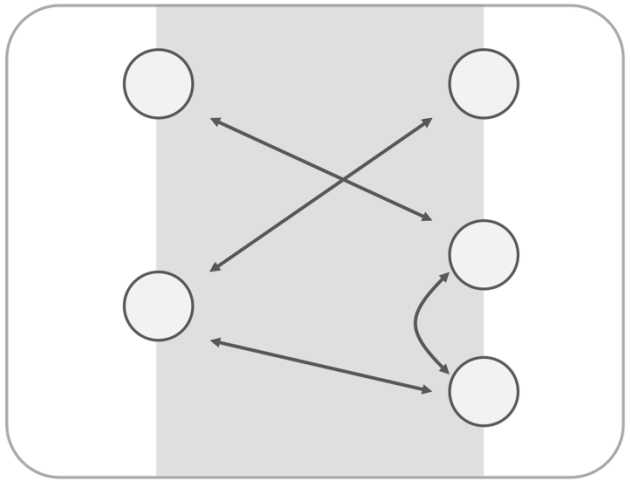
Source: J.-P. Rodrigue, PEMP (educational use); container traffic 2021

Hub and Spoke System



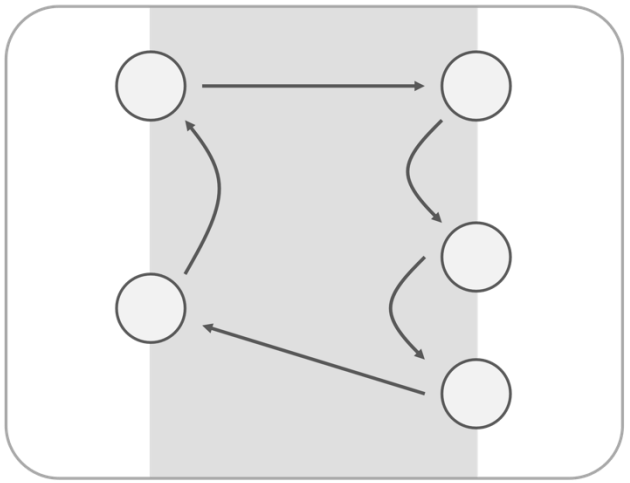
Source: J.-P. Rodrigue, PEMP (educational use); container traffic 2021

Maritime Routes



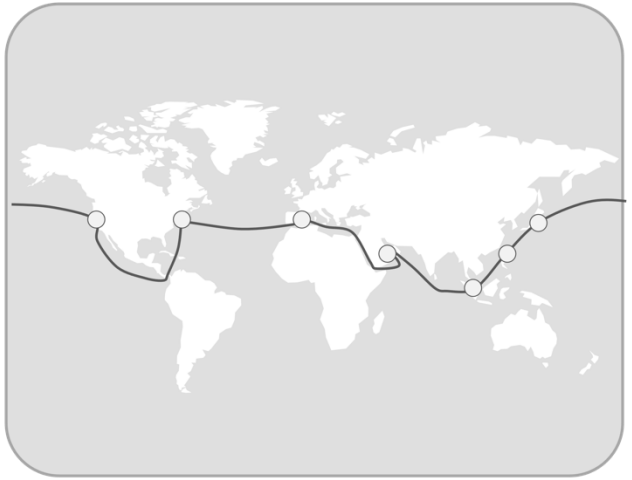
Port-to-Port

Point to point services.
Empty backhauls.
Common for bulk freight.



Pendulum

Shipping service moving back and forth between two maritime ranges (seaboards).
Balancing the number of port calls and the frequency of services.
Can rely on transshipment hubs between ranges.



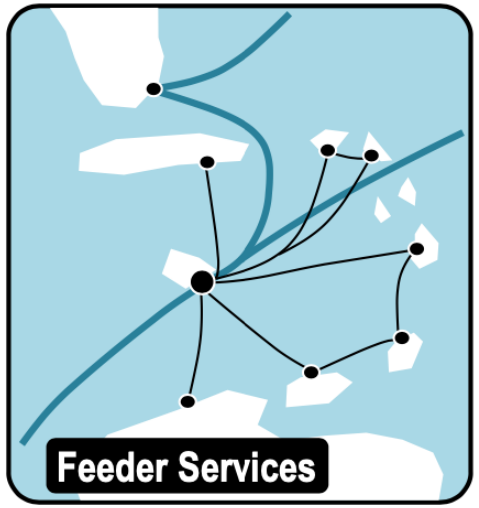
Round-the-World

Servicing continuously a sequence of ports.
Sequence enables a round trip around the world.
Limited amount of ports per continent are serviced.
Involve a series of transshipment hubs.

Source: J.-P. Rodrigue, PEMP (educational use); container traffic 2021

Maritime Routes (2)







	Regional Services	Feeder Services	Ferry Services
Market	• Regional or intra-corporation cargo.	• Feeder cargo (from/to deepsea services).	• Regional cargo over short distances.
Frequency	• Fixed schedule with low frequency	• Shipping line schedule.	• Fixed schedule with high frequency.
Service orientation	• Regional loop.	• Transshipment hubs.	• Point to point.
Operation	• Lift-on/Lift-off (Lo/Lo); Roll-on/Roll-off (Ro/Ro).	• Lift-on/Lift-off (Lo/Lo).	• Roll-on/Roll-off (Ro/Ro).
Cargo type	• Containers, break bulk, Ro/Ro.	• Containers.	• Trucks, trailers, passengers.
Infrastructure	• Shore-side cranes, warehouses and container storage areas.	• Shore-side cranes and container storage areas.	• Minimal (quays), vessels with ramps.
Competition	• Road and rail transport (if present).	• Direct port calls. Ferry services.	• Road and air transport (if present). Feeder services.

Source: J.-P. Rodrigue, PEMP (educational use); container traffic 2021

Maritime Routes (3)



Liner Services

Servizi di linea (liner shipping)
Sono quelli delle portacontainer.
•Rotte **fisse e regolari**
•Orari e scali prestabiliti
•Funzionamento “a calendario”

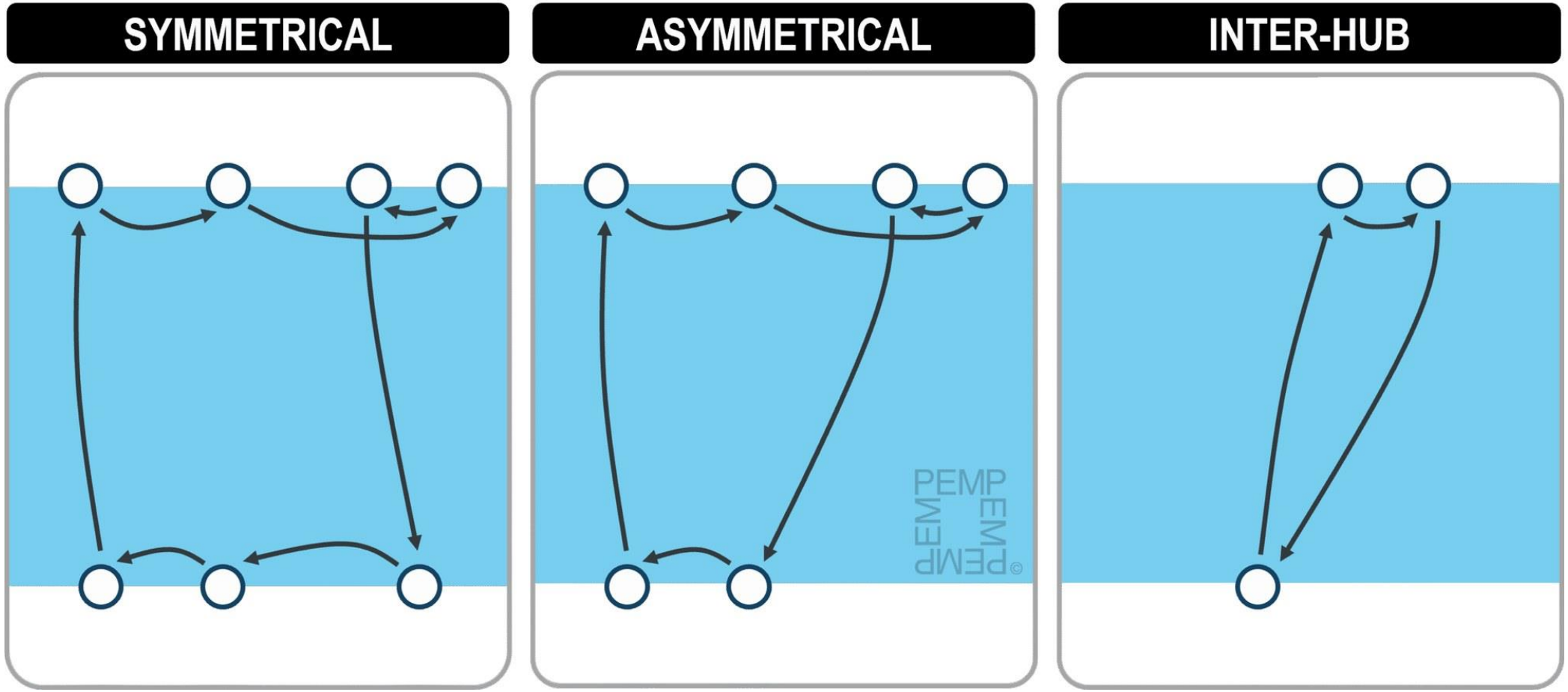


Tramp Shipping

Servizi tramp (tramp shipping)
Sono quelli delle petroliere (ma anche bulk carrier, gasiere, ecc.).
•**Nessuna rotta fissa**
•Navi impiegate **su richiesta** (charter)
•Itinerari decisi di volta in volta in base alla domanda
•Funzionamento “a chiamata”

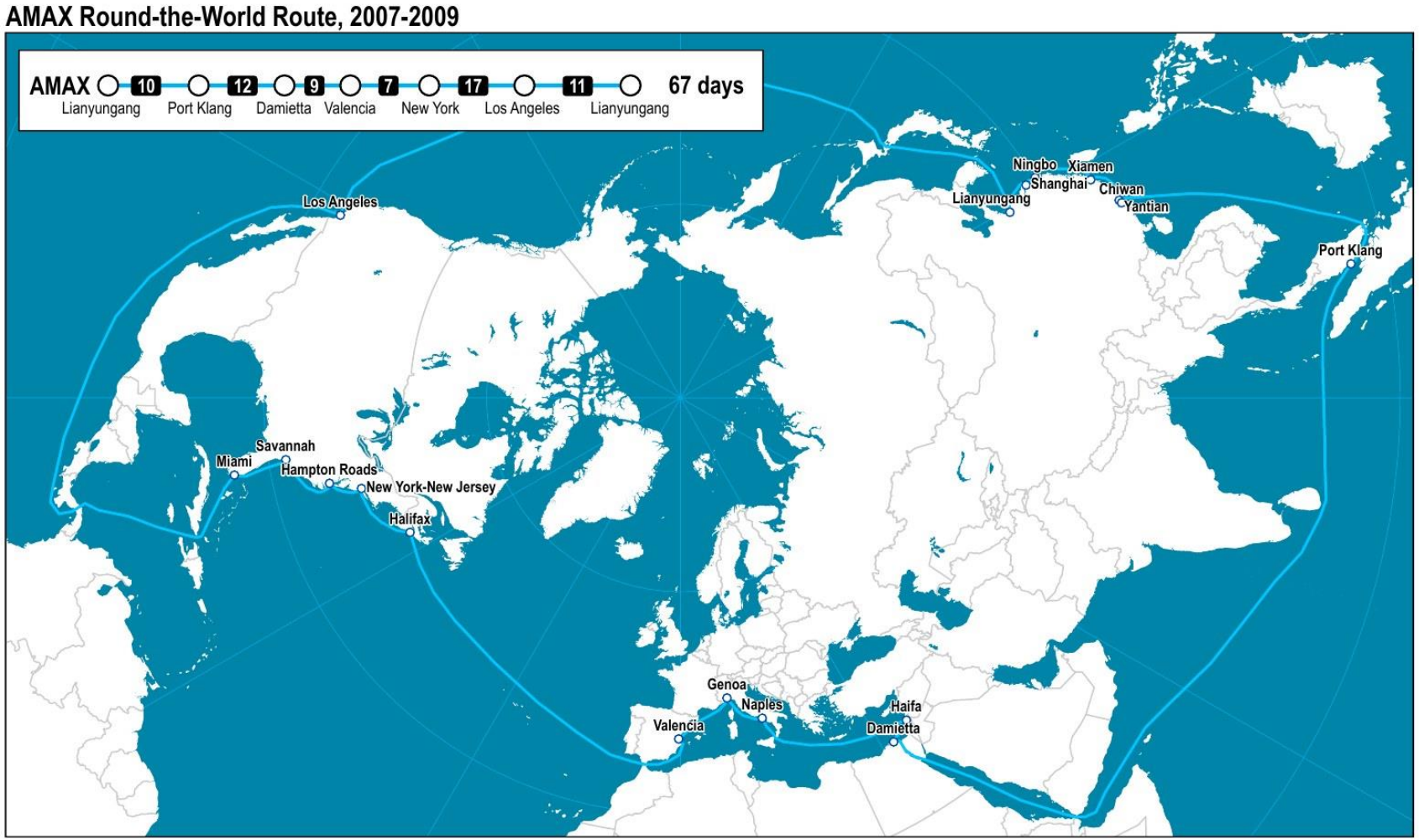
Source: J.-P. Rodrigue, PEMP (educational use); container traffic 2021

Inter-range liner services



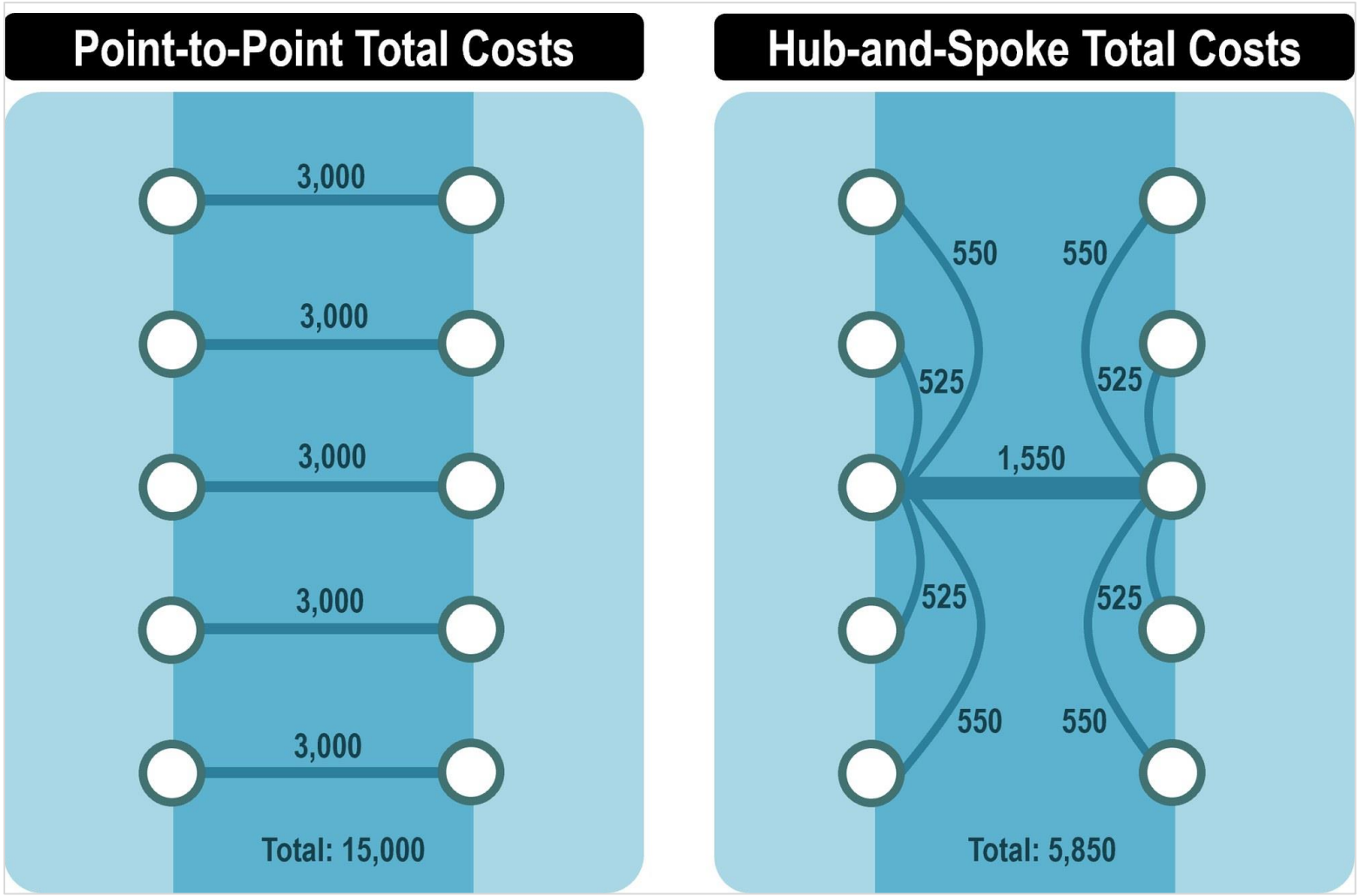
Source: T. Notteboom, A. Pallis, J.-P. Rodrigue, Port Economics, Management and Policy, Routledge – porteconomicsmanagement.org (educational use) · «Types of Inter-Range Maritime Routes»

A round-the-world service: AMAX (2007-2009)



Source: T. Notteboom, A. Pallis, J.-P. Rodrigue, Port Economics, Management and Policy, Routledge – porteconomicsmanagement.org (educational use) · «AMAX Round-the-World Route, 2005-2007»

Point-to-point and hub-and-spoke networks



HOW TO READ THE FIGURE

1. Ten ports on two coasts can be linked **point-to-point**: five direct services, each costing 3,000, for a **total of 15,000**.

2. In a **hub-and-spoke** network, flows are consolidated at two hubs and carried by a large ship on the trunk line (1,550), with feeders to the other ports (525-550): **total 5,850**.

3. Consolidation allows larger ships and higher load factors on the trunk line, so costs fall sharply.

4. It should be pointed out that the saving comes with a price: more handling, longer transit times and dependence on the hubs, where delays spread to the whole network.

Source: J.-P. Rodrigue, The Geography of Transport Systems, 6th ed., Routledge – transportgeography.org (educational use) · «Cost Structure of Point-to-Point and Hub-and-Spoke Networks»

GATEWAY AND TRANSSHIPMENT HUB

A **gateway** is a port that links a foreland to a hinterland: most of its cargo enters or leaves by land. A **transshipment hub** is a port where containers move from one ship to another, without leaving the port: its market is the foreland. The **transshipment incidence** is the share of transshipped containers in the total traffic of a port.

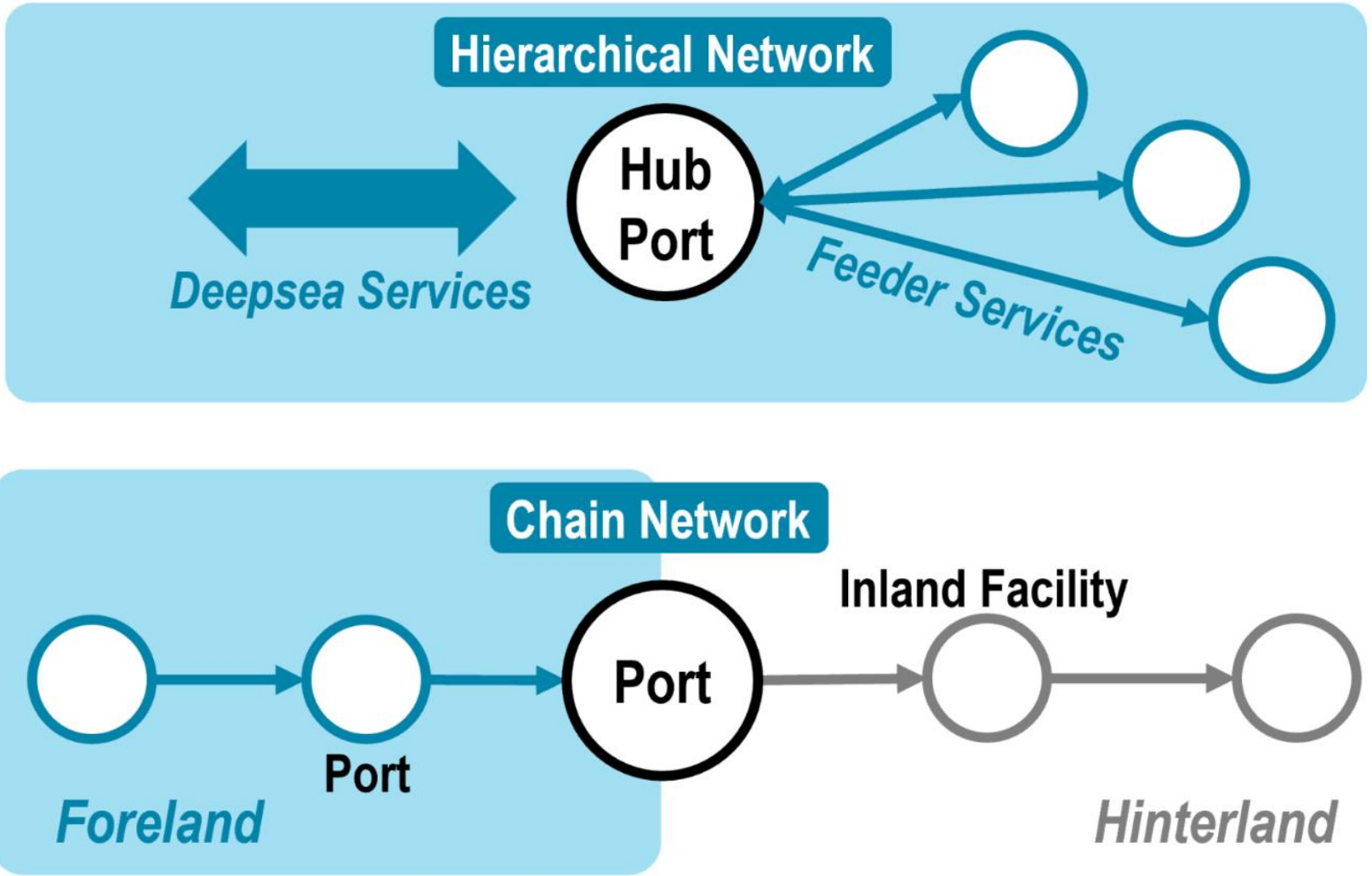


The MSC Irina (24,346 TEU) at Vizhinjam, India's first deep-water transshipment port, opened in 2025.

- **Gateways**: Rotterdam, Antwerp, Los Angeles, Shanghai, Genoa. Their strength comes from the hinterland.
- **Hubs**: Singapore (about 85% transshipment), Tanger Med, Algeciras, Colombo, Gioia Tauro (almost 100%). Their strength comes from location and from the choices of carriers.
- Many large ports combine both functions; transshipment counts each container twice (unloaded and loaded), which inflates the figures.

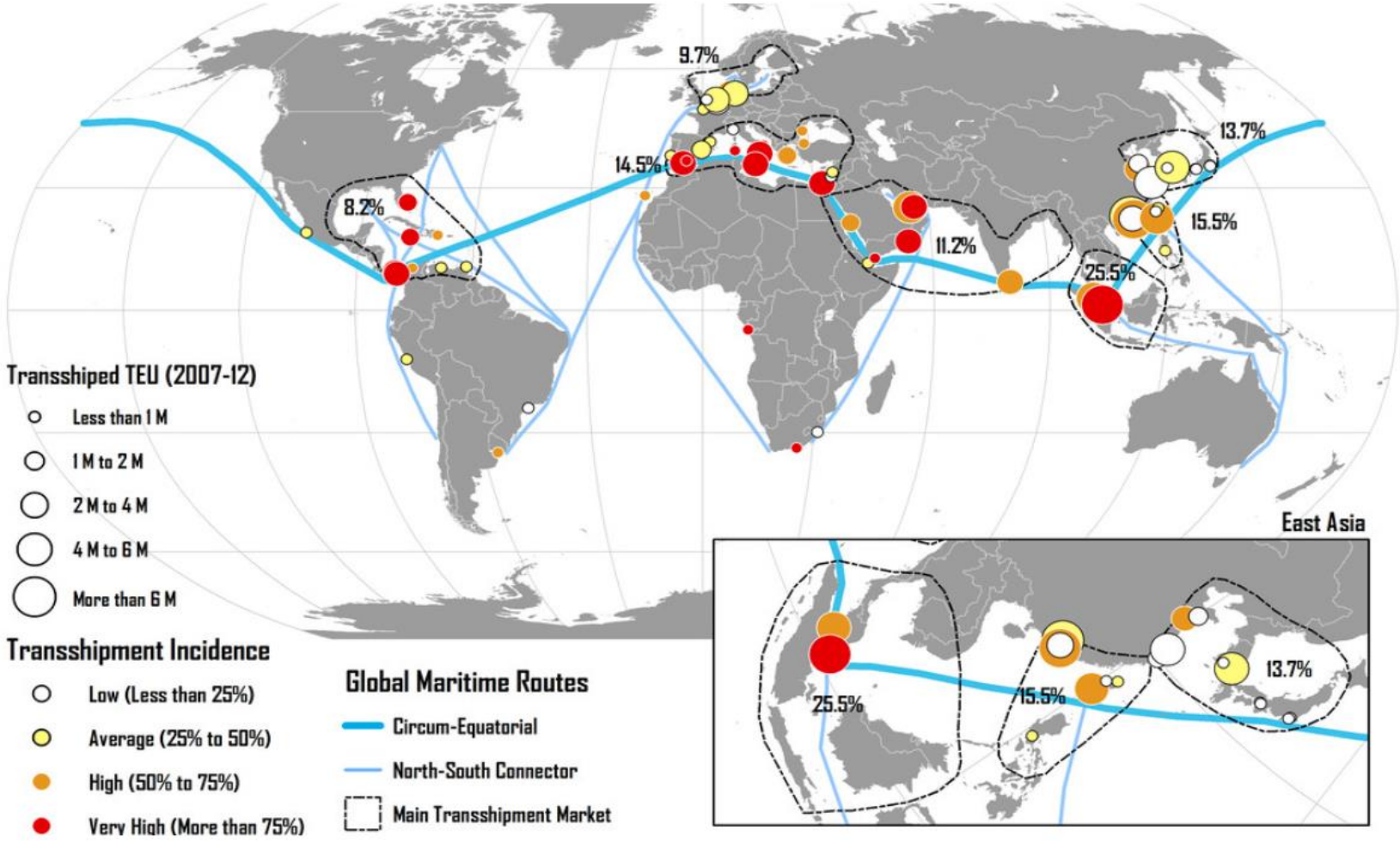
Source: J.-P. Rodrigue (2024); port authorities; Adani Ports (2025); photo: Wikimedia Commons

Gateways and transshipment hub



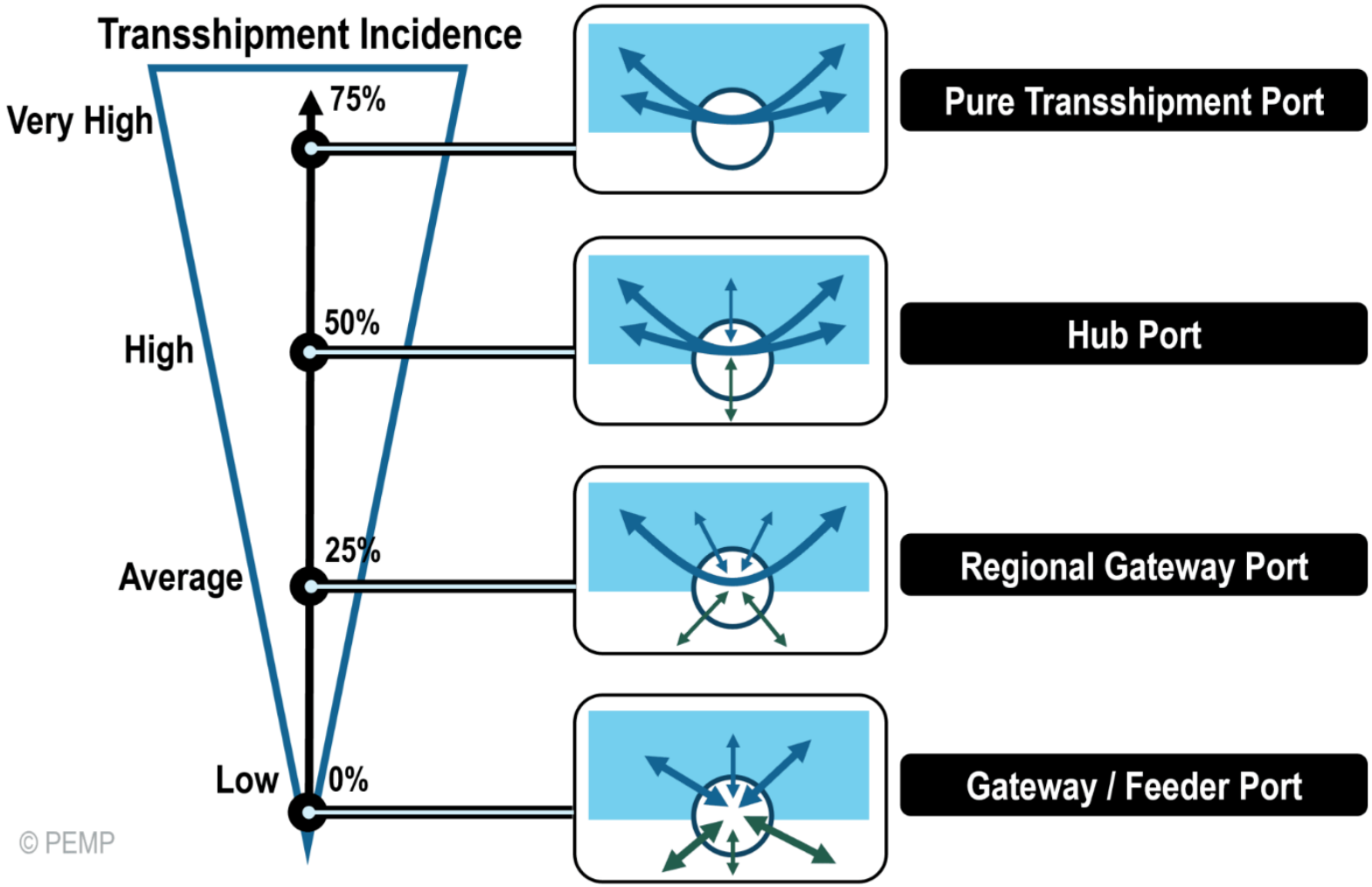
Source: T. Notteboom, A. Pallis, J.-P. Rodrigue, Port Economics, Management and Policy, Routledge – porteconomicsmanagement.org (educational use) · «Inland Ports and Logistics Zones Around the Rhine / Scheldt Delta»

Where transshipment happens: the main markets



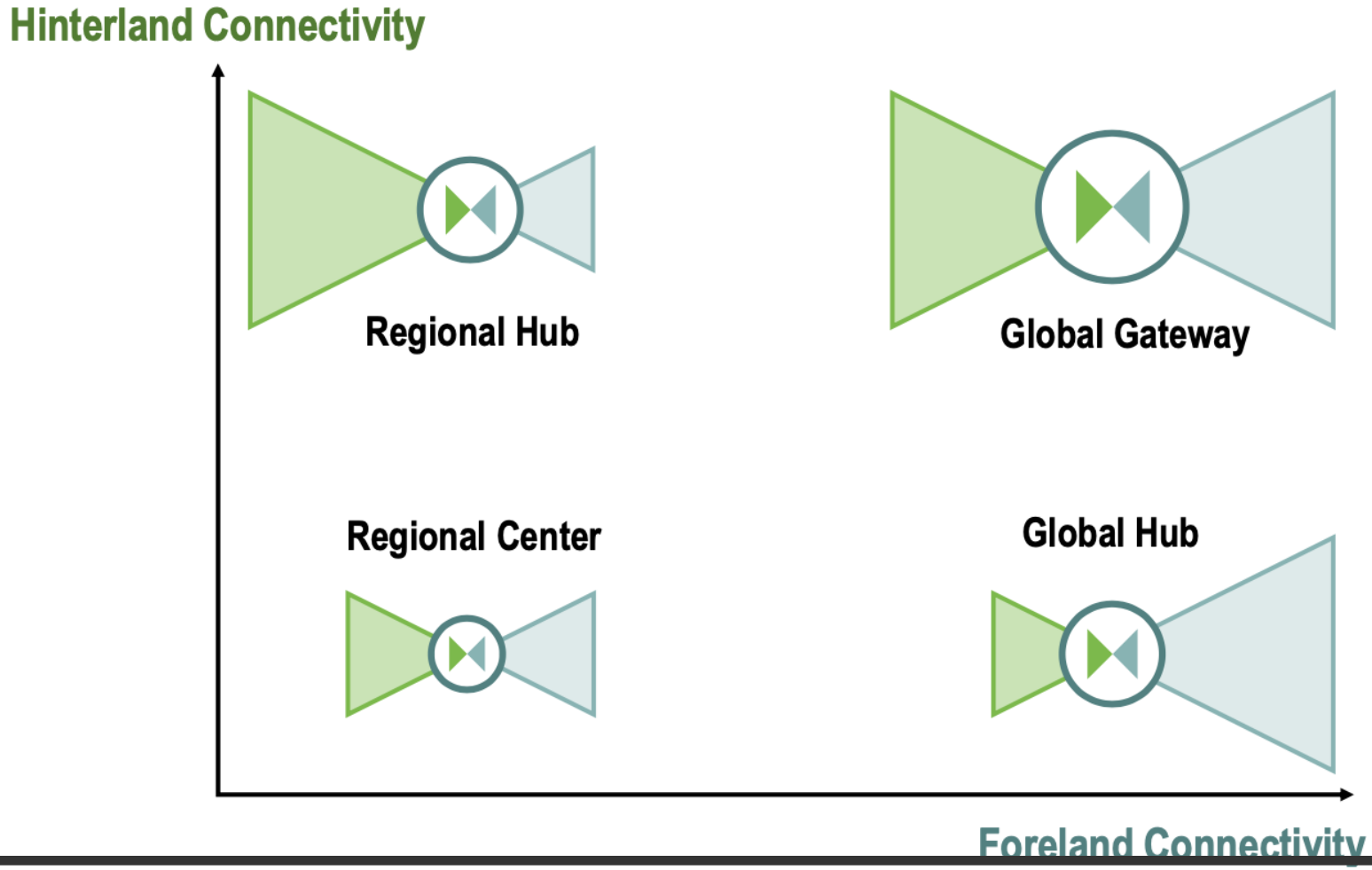
Source: T. Notteboom, A. Pallis, J.-P. Rodrigue, Port Economics, Management and Policy, Routledge – porteconomicsmanagement.org (educational use) · «Major Shipping Bottlenecks and Intermediate Hubs, 2019»

Transshipment and gateways



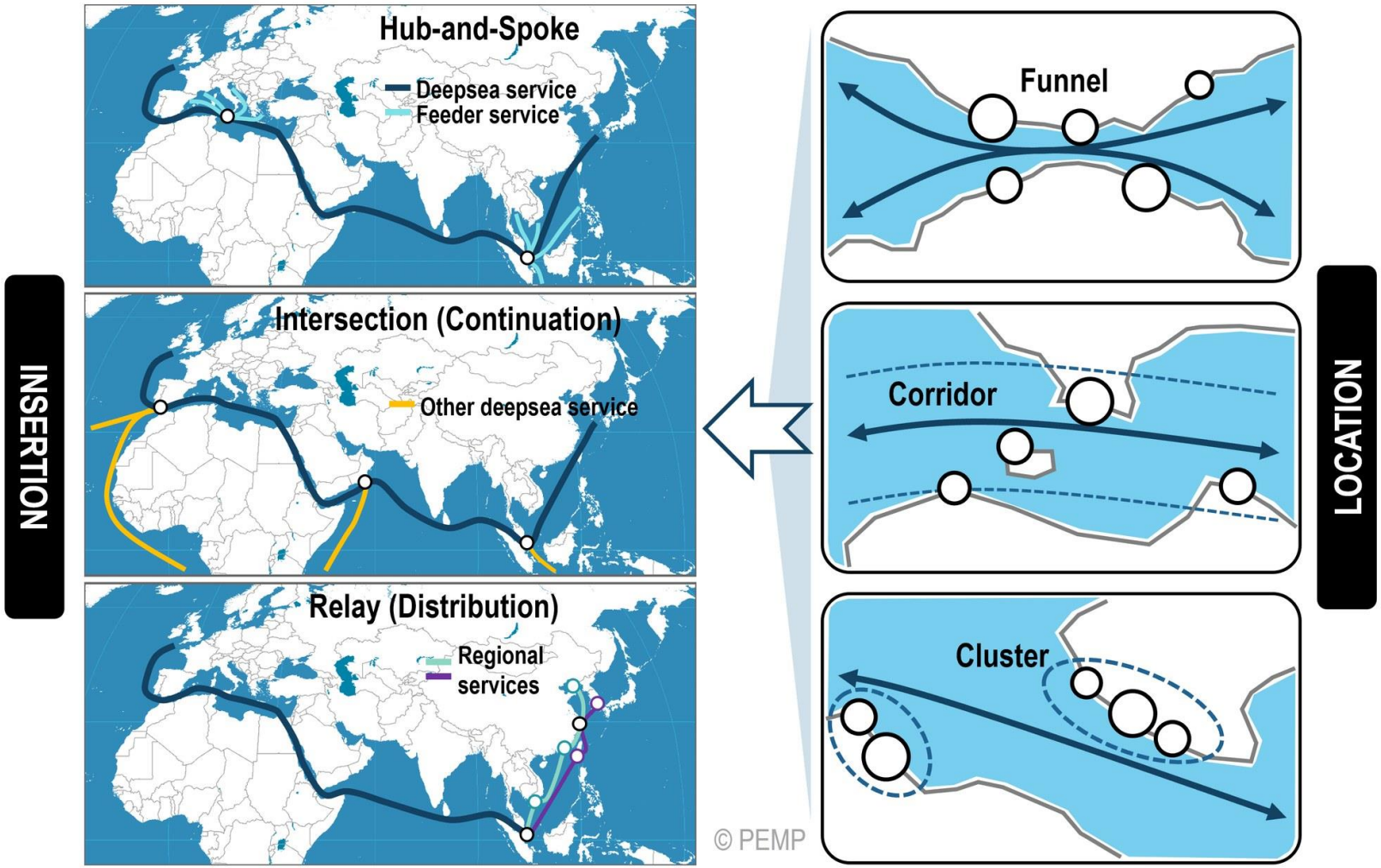
Source: T. Notteboom, A. Pallis, J.-P. Rodrigue, Port Economics, Management and Policy, Routledge – porteconomicsmanagement.org (educational use) · «Major Shipping Bottlenecks and Intermediate Hubs, 2019»

Transshipment and gateways



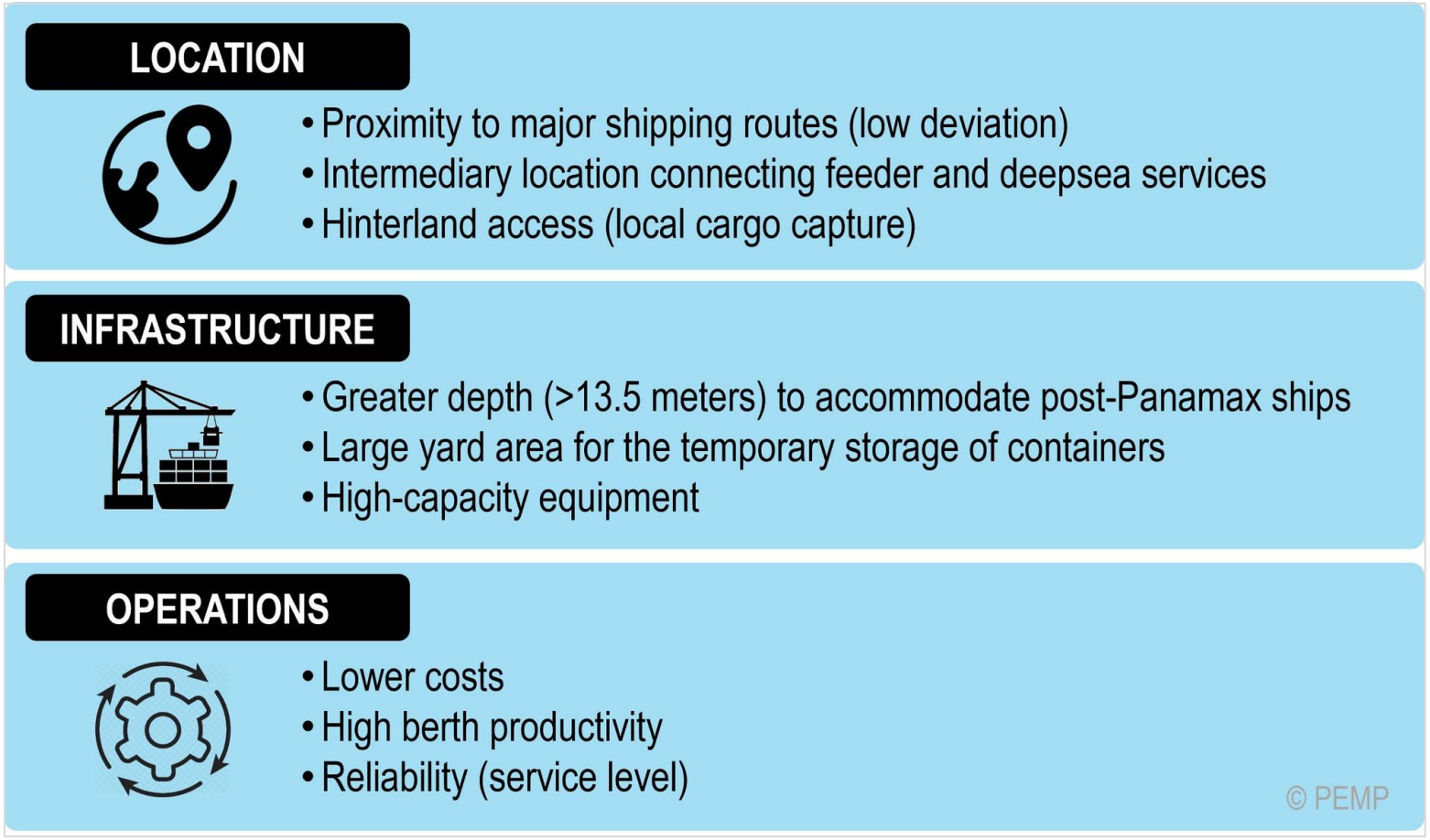
Source: T. Notteboom, A. Intermediate Hubs, 2019»

How hubs are inserted and located in networks



Source: T. Notteboom, A. Pallis, J.-P. Rodrigue, Port Economics, Management and Policy, Routledge – porteconomicsmanagement.org (educational use) · «The Insertion and Location of Transshipment Hubs»

What makes a transshipment hub



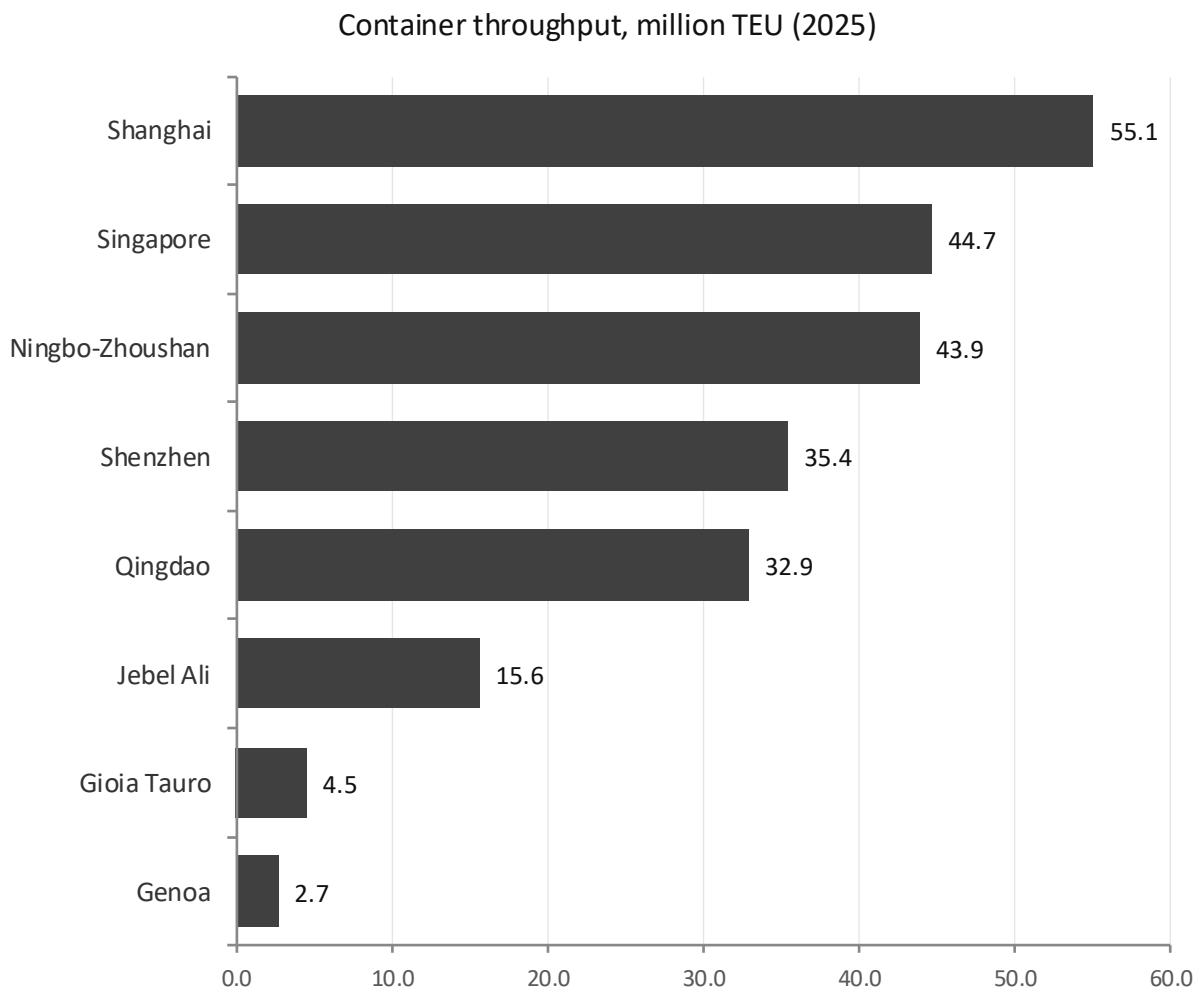
Location: proximity to main shipping routes (low deviation), an intermediate position between feeder and deep-sea services, some access to a local hinterland.

Infrastructure: water depth of more than **13.5 metres** for post-Panamax ships (today 16-18 m for the largest), large yards for temporary storage, high-capacity cranes.

Operations: low costs, high berth productivity, reliable service levels.

Source: T. Notteboom, A. Pallis, J.-P. Rodrigue, Port Economics, Management and Policy, Routledge – porteconomicsmanagement.org (educational use) · «Selection Factors for a Transshipment Hub»

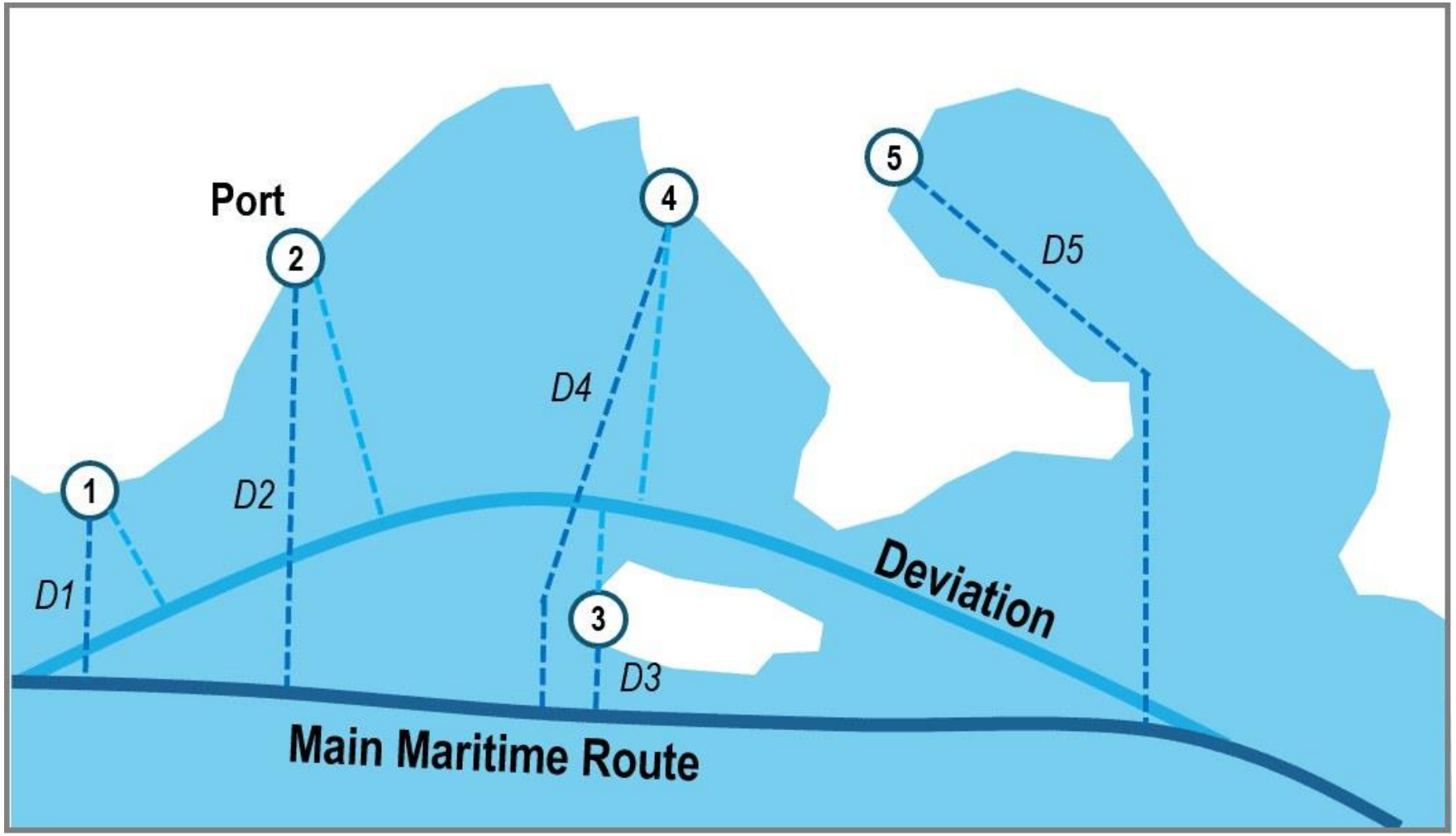
The largest container ports and two Italian ports, 2025



- World container ports handled more than **1 billion TEU** in 2025; the top 20 about **450 million TEU**, and China has **9** of them.
- **Shanghai** leads with 55 million TEU. **Ningbo-Zhoushan** grew 11.6% and in the first half of 2026 overtook **Singapore** (22.9 against 22.7 million TEU).
- The two largest Italian ports, **Gioia Tauro** and **Genoa**, together handle about a seventh of Shanghai's volume; all Italian ports together about 12.8 million TEU.
- **Jebel Ali** (15.6 million TEU in 2025) fell from 10th to 32nd place in 2026 after the closure of Hormuz: 3.1 million TEU in the first half of 2026 against 7.8 a year earlier.

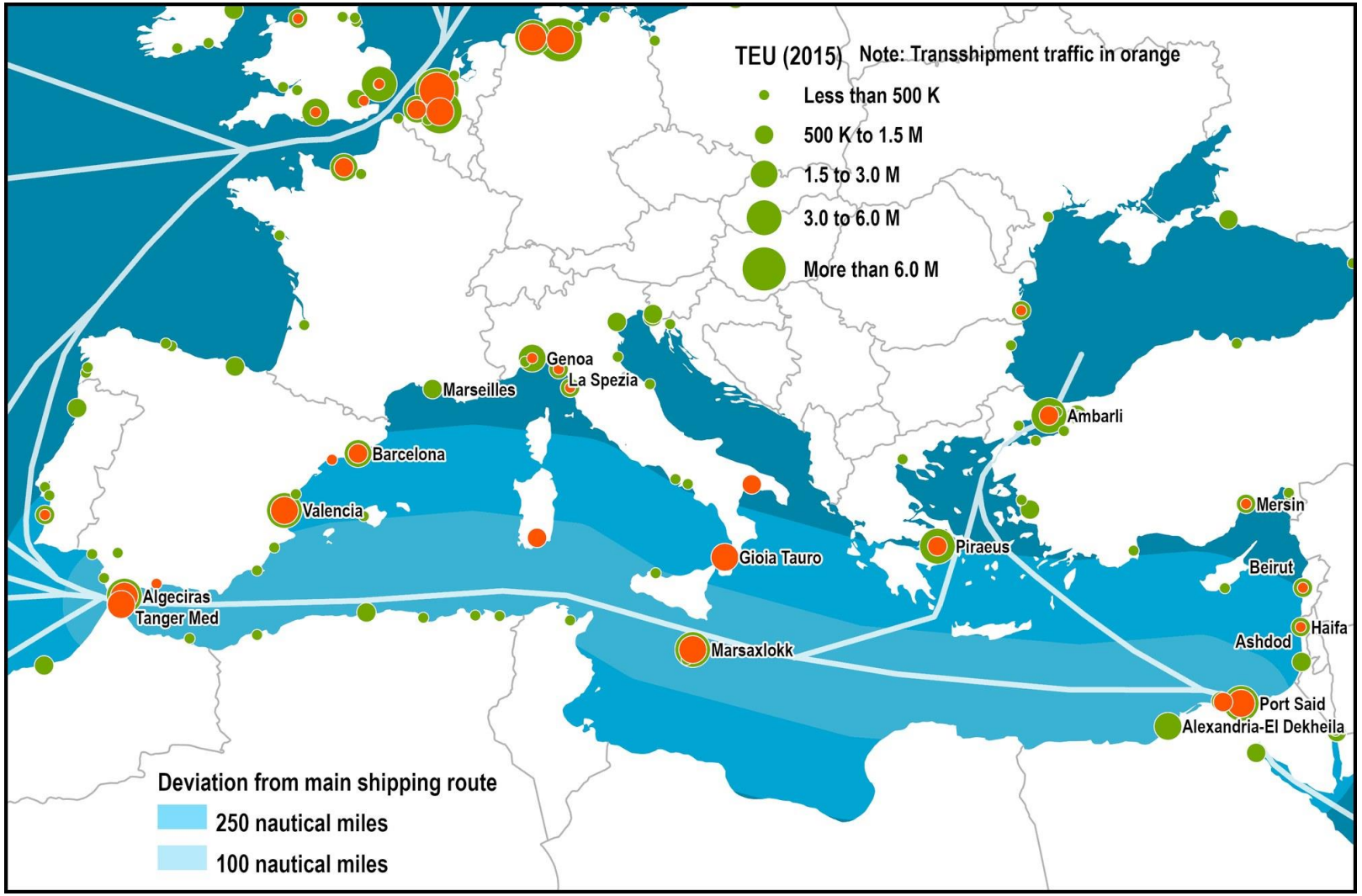
Source: Alphaliner, Top 50 Container Ports 2025 (March 2026), via FreightWaves (28 August 2026) and India Seatrade News; port authorities of Gioia Tauro and Genoa

Deviation from the main maritime route

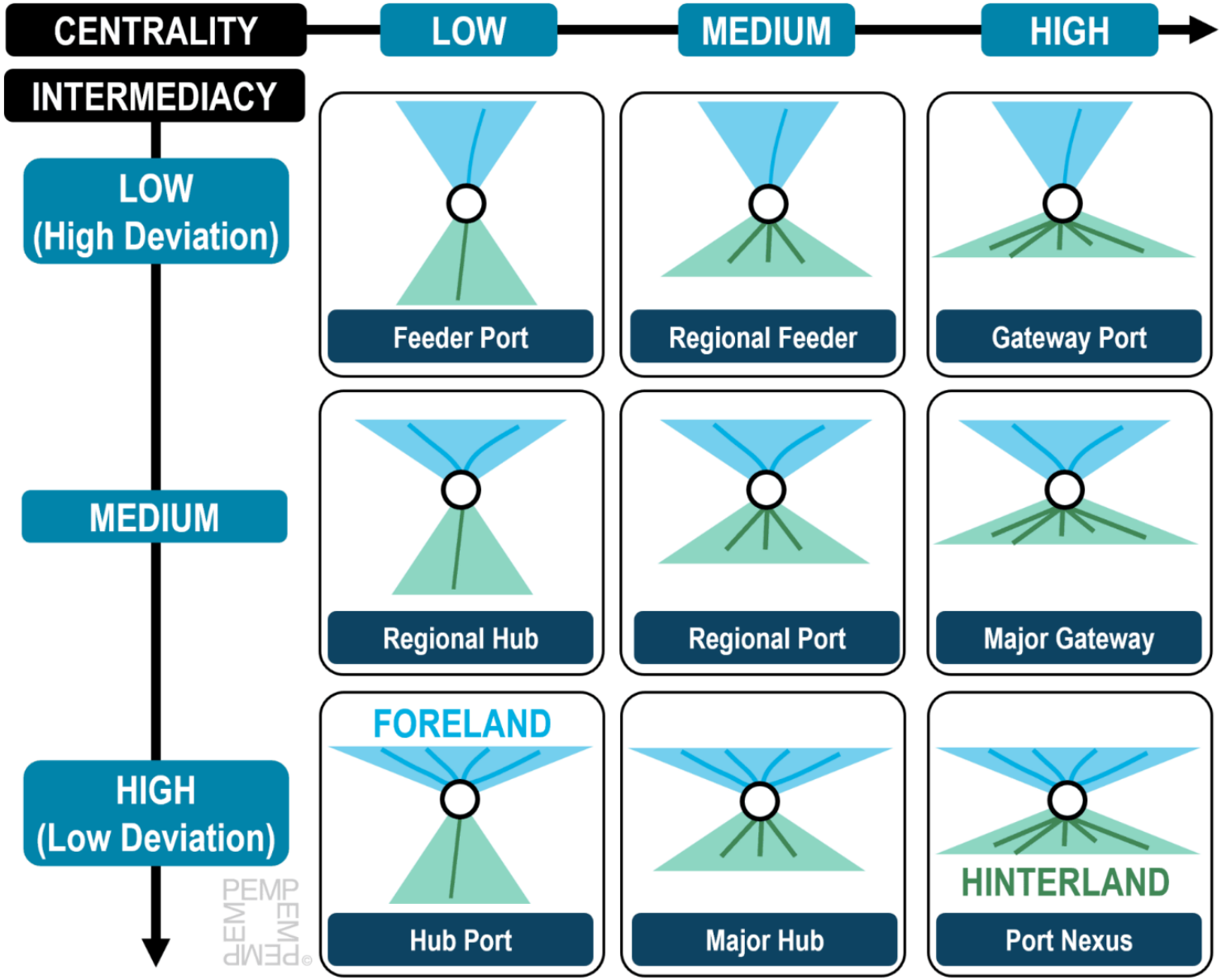


Source: T. Notteboom, A. Pallis, J.-P. Rodrigue, Port Economics, Management and Policy, Routledge – porteconomicsmanagement.org (educational use) · «Maritime Deviation»

Mediterranean ports and transshipment hubs

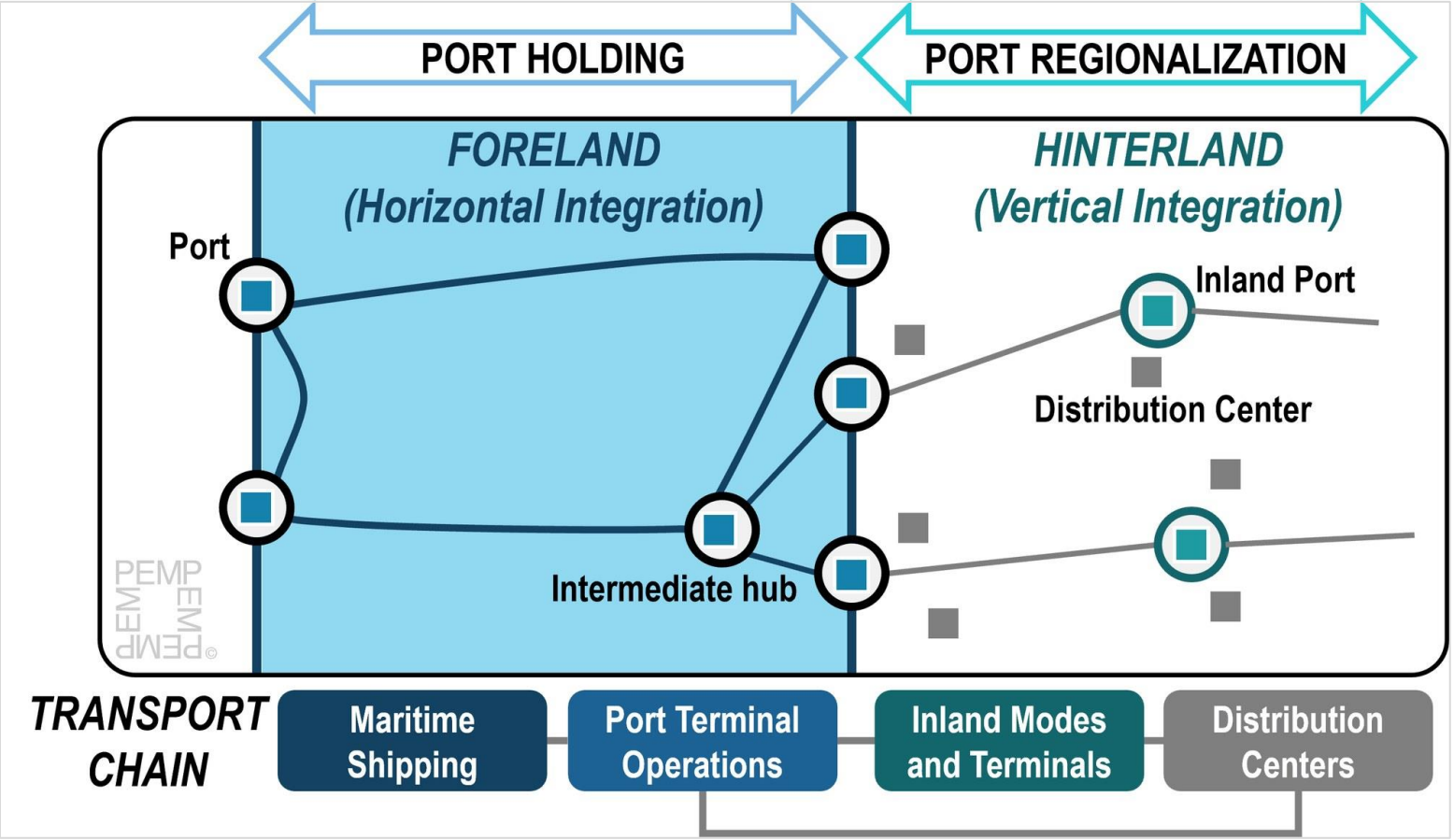


Source: T. Notteboom, A. Pallis, J.-P. Rodrigue, Port Economics, Management and Policy, Routledge – porteconomicsmanagement.org (educational use) · «Deviation from the Main Shipping Route of Mediterranean Container Ports»



Source: T. Notteboom, A. Pallis, J.-P. Rodrigue, Port Economics, Management and Policy, Routledge – porteconomicsmanagement.org (educational use) · «Deviation from the Main Shipping Route of Mediterranean Container Ports»

Horizontal and vertical integration in ports



HOW TO READ THE FIGURE

1. Horizontal integration on the foreland side: a **port holding** (a terminal operator or a port authority) acquires terminals in several ports, including intermediate hubs.

2. Vertical integration on the hinterland side: **port regionalisation** links the port to inland ports and distribution centres.

3. The bottom row shows the **transport chain**: maritime shipping, port terminal operations, inland modes and terminals, distribution centres.

4. We can note how both strategies cross scales: horizontal integration builds global networks of terminals; vertical integration connects a port to its regional hinterland.

Source: T. Notteboom, A. Pallis, J.-P. Rodrigue, Port Economics, Management and Policy, Routledge – porteconomicsmanagement.org (educational use) · «Vertical and Horizontal Integration in Port Development»

Carriers become logistics integrators

Between 2019 and 2024 the record profits of the pandemic years allowed the largest carriers to buy logistics firms, airlines and terminals. Each followed a different path.

Maersk

- Strategy: become an **integrated logistics** company, «from the factory to the shelf».
- Acquisitions: Performance Team (2020), Visible SCM, Pilot, LF Logistics (2022).
- APM Terminals as its terminal arm; Maersk Air Cargo.
- In the Gemini alliance with Hapag-Lloyd (from February 2025), a **hub-and-spoke** network with own hubs.

MSC

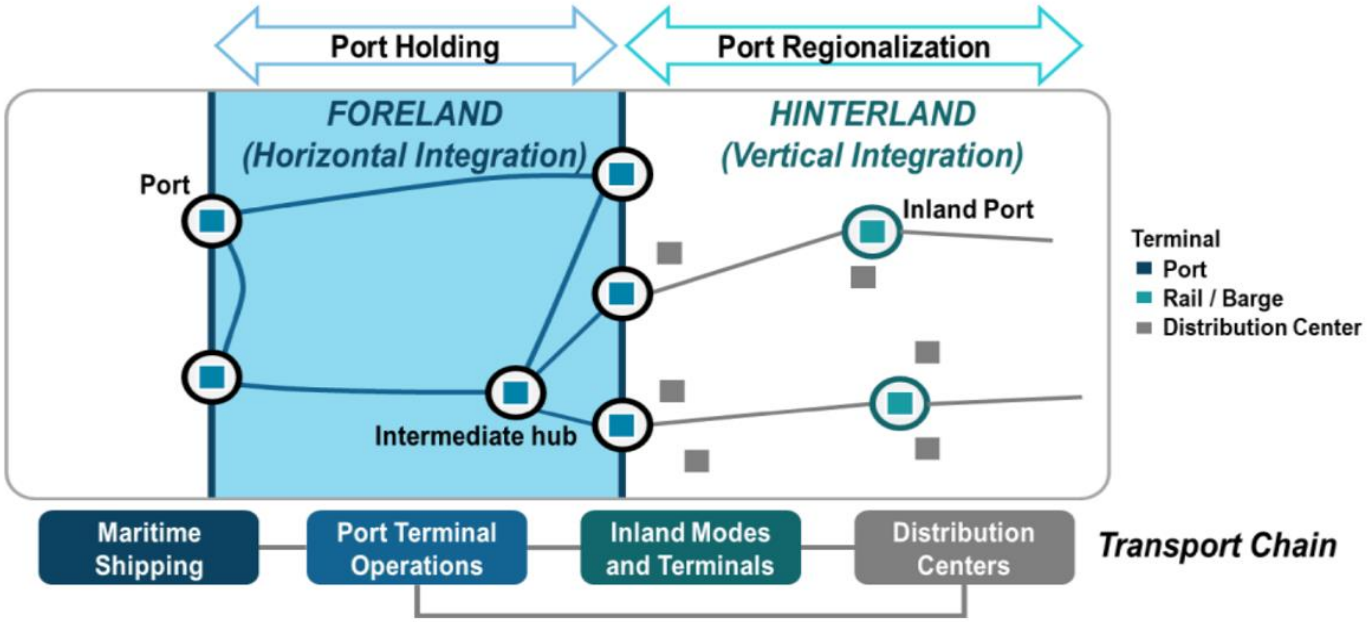
- Strategy: **scale and control** of every link, largely through acquisitions.
- Terminal Investment Limited (TiL, with BlackRock-GIP) in over 70 terminals; full control of Gioia Tauro (2019).
- Bolloré Africa Logistics, renamed AGL (2022); Gram Car Carriers; Medlog; MSC Air Cargo.
- Stake in Hamburg's HHLA (2024) and in Italian ferries (Moby, GNV).

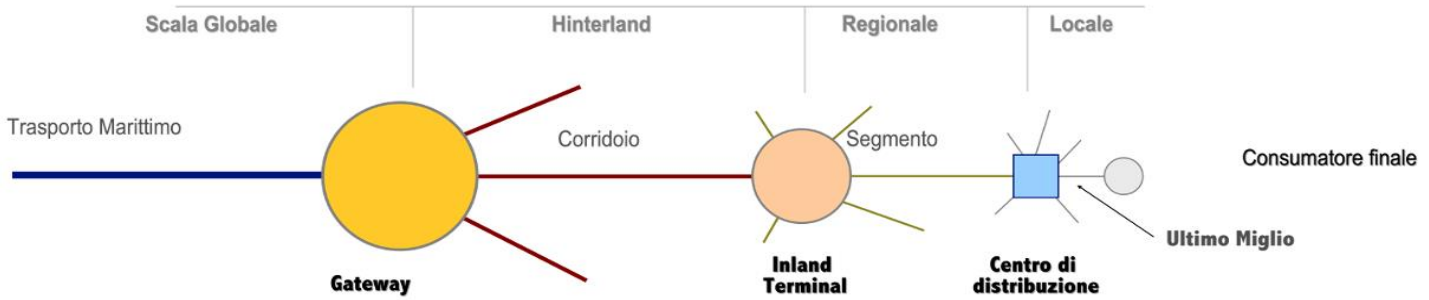
CMA CGM and COSCO

- **CMA CGM**: CEVA Logistics (2019), Ingram Micro CLS, GEFCO (2022), Bolloré Logistics (2024); air cargo; media.
- **COSCO**: OOCL (2018); COSCO Shipping Ports with terminals from Piraeus to Abu Dhabi, Chancay (Peru, 2024) and Valencia.
- COSCO's expansion is linked to China's **Belt and Road Initiative**: commercial and geopolitical goals overlap.

Source: Company reports; T. Notteboom, A. Pallis, J.-P. Rodrigue (2022); Drewry

Economic Geography





Source: T. Notteboom, A. Pallis, J.-P. Rodrigue, Port Economics, Management and Policy, Routledge – porteconomicsmanagement.org (educational use) · «Maritime Transportation Networks and Vulnerabilities»

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- MSC IRINA TRIVANDRUM PORT HD.jpg (Giridharseeman; CC0)
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