

MANAGEMENT OF PORT FACILITIES AND INFRASTRUCTURE

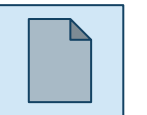
1. Port Governance and Management

MARA 616

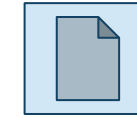
Professor: Dr. Jean-Paul Rodrigue



The Port of Portus, Ancient Rome



Fundamental Characteristics of the Maritime Industry



Read this content



TERTIARY INDUSTRY

- Mostly tertiary (service) sector.
- Some primary (fishing & energy).
- Some secondary (shipbuilding, construction).



DERIVED DEMAND

- Outcome of other activities.
- Industrial and manufacturing.
- Trade and retailing.
- Tourism.



CAPITAL INTENSIVE

- Infrastructure-heavy.
- High cost of entry.
- Long-term investments.
- Propensity toward oligopolies.



FIXED & MOBILE ASSETS

- Asset interdependency.
- Ships.
- Ports and channels.
- Equipment.



ECONOMIES OF SCALE

- Most suitable sector.
- Increase capital-intensiveness.
- Massification and atomization.



TRANSACTION INTENSIVE

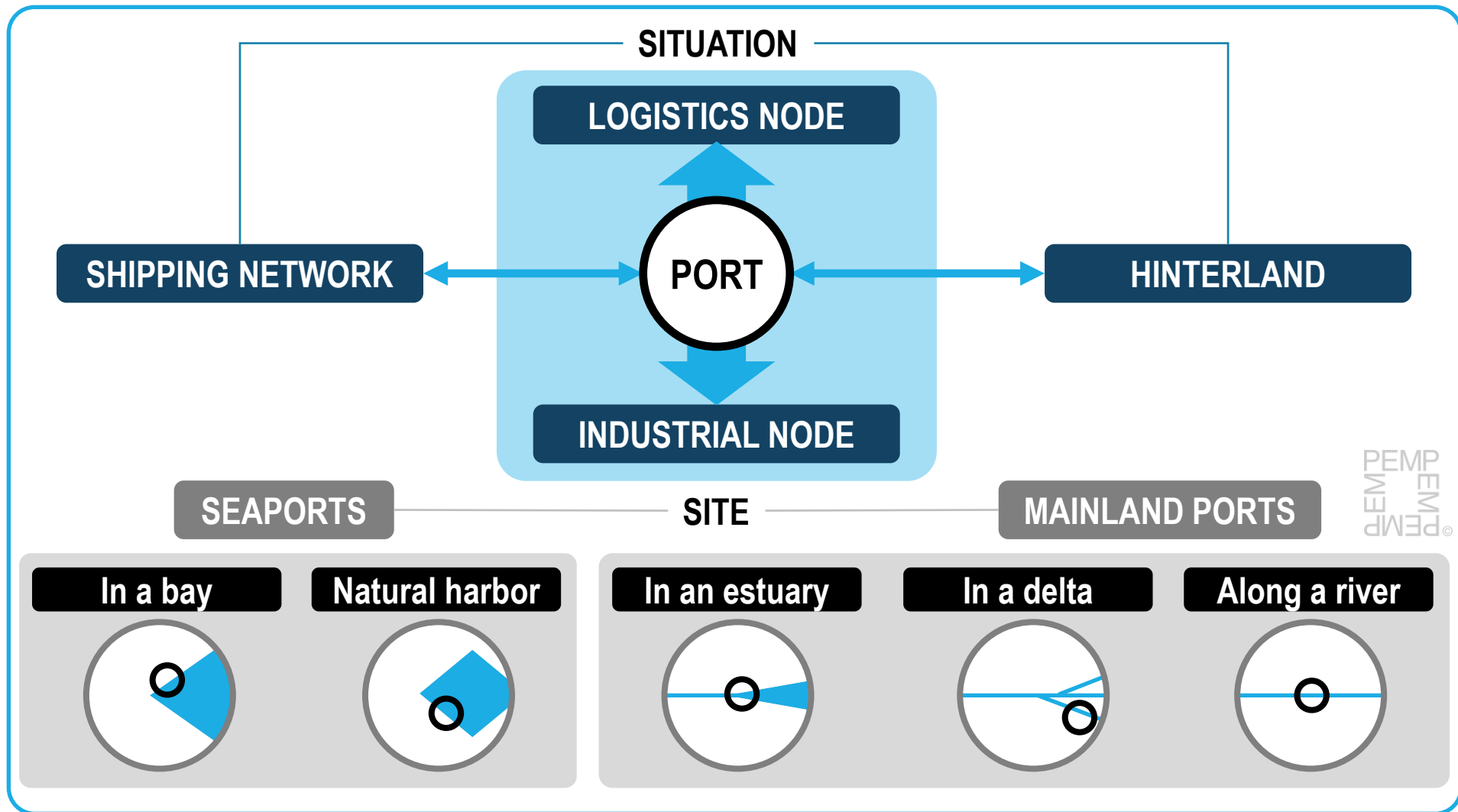
- Multiple actors, markets and regulations.
- Large quantities of cargoes.
- High values of assets and cargoes.

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Setting the Context

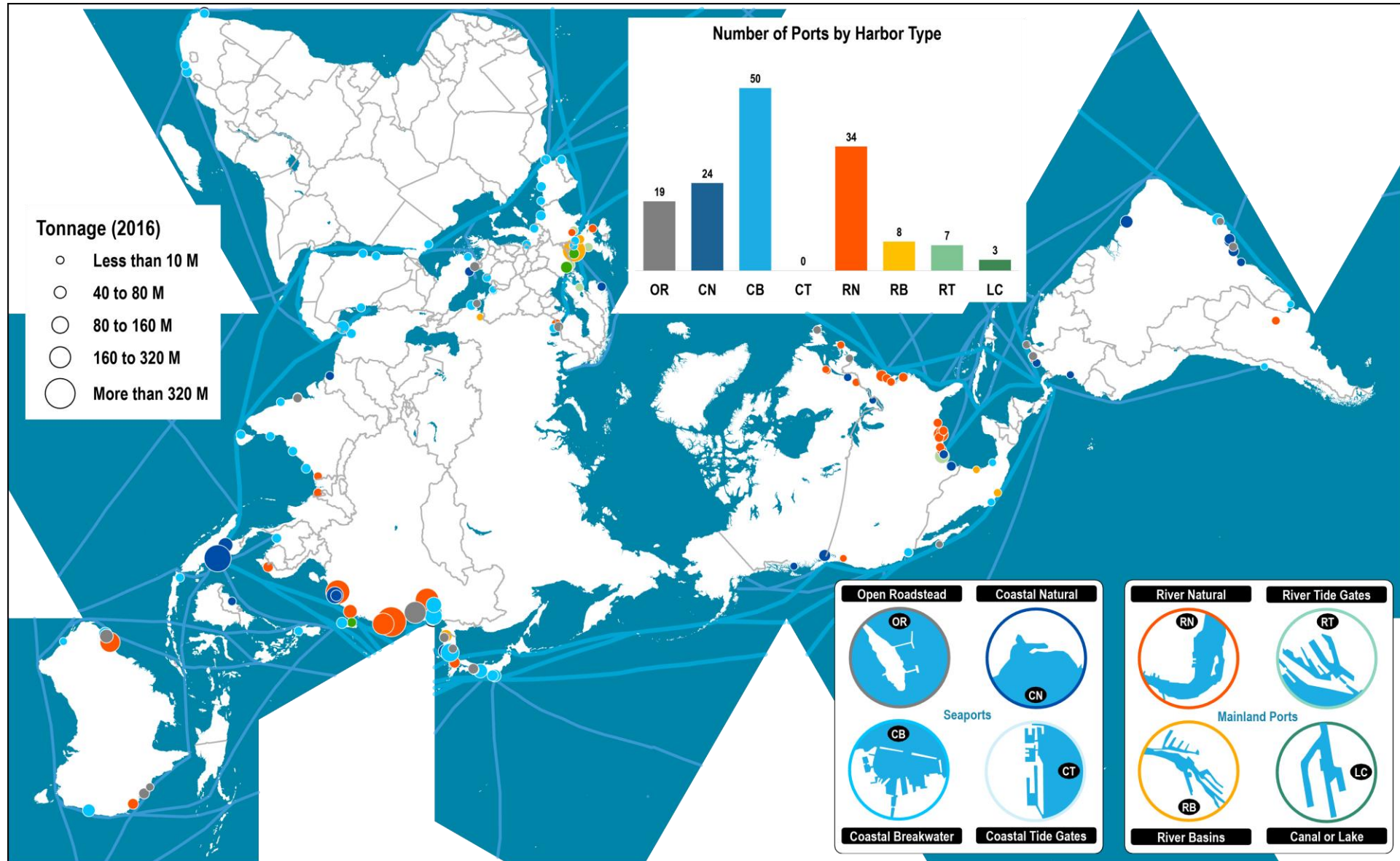
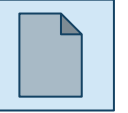
- Port Management
 - Administrating and coordinating port operations to ensure efficient and safe activities.
- Port Facilities
 - Main physical elements of a port.
 - Delaminated port areas.
 - Terminals, channels.
 - Composed of different types of infrastructure.
- Port Infrastructure
 - Equipment required to support port operations.
 - Composed of infrastructure and superstructure.

Defining the Seaport



Harbor Types

[Read this content](#)



Main Physical Elements of a Port



[Read this content](#)

Physical Elements of a Port

- Harbor
 - A shelter, either natural or artificial, for ships.
- Anchorage area
 - A designated area where ships can anchor while waiting for an available berth.
 - Well-defined with buoys and with the ability to be serviced for stores and bunkering.
- Breakwater
 - Permanent structures extending into the sea to protect the harbor against tides, currents, waves, wind, and storm surges.
- Navigation channel
 - Ship access channels dredged to allow ships to enter the harbor.
 - Controlled depth and movements are usually assisted by pilots and tug boats.
- Turning basin
 - A circular area allowing for the vessels to turn around and maneuver into the harbor.

Physical Elements of a Port

- Berthing basin
 - A dredged area next to a berth that allows a ship to be moored safely.
 - Important to ensure that ships of specific capacity and length can safely berth.
- Berths (or docks).
 - Docking structures with defined length and lateral capacity to support berthing and mooring operations.
- Wharves
 - One or more berths aligned parallel to the shore.
- Piers
 - Docking structures extending into the sea and that are extensions of the terminal facility.
- Jetties
 - Docking structures extending into the sea and that serve the sole purpose of loading (unloading) cargo.

Management of Port Facilities and Infrastructure: Course Outline

**1. Port
Governance and
Management**

**2. Harbor
Facilities and
Infrastructures**

**3. Port
Terminals**

**4. Port Safety
and Security**

**5. Bulk and
Breakbulk
Terminals**

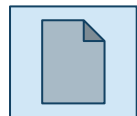
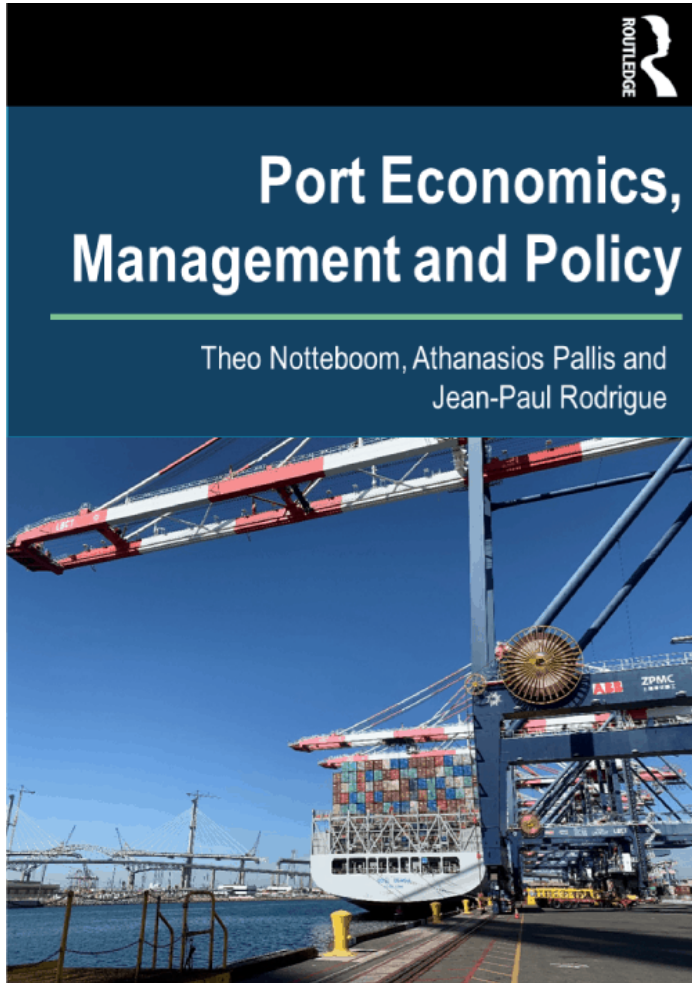
**6. Container
Terminals**

**7. Cruise
Terminals**

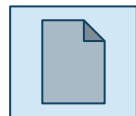
Grading Policy

- First Assignment (30)
 - Port management profile.
- Second Assignment (30)
 - Port infrastructure profile.
- Third Assignment (30)
 - Port development profile.
- Extra credit (10)
 - Interview with a port or terminal manager.

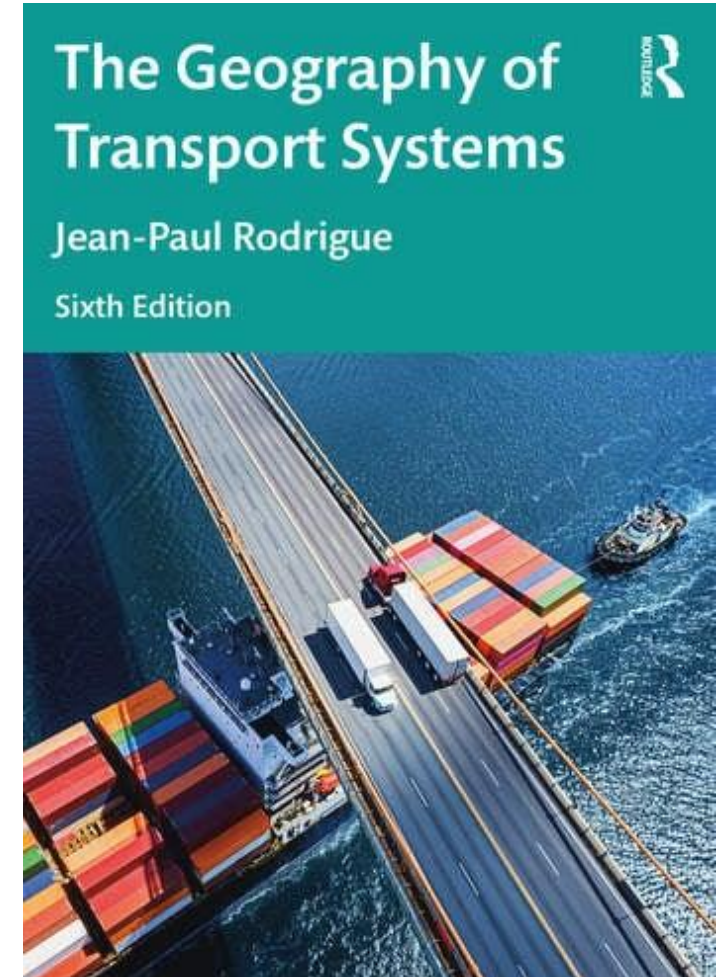
Reading Material



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A. Defining Port Governance

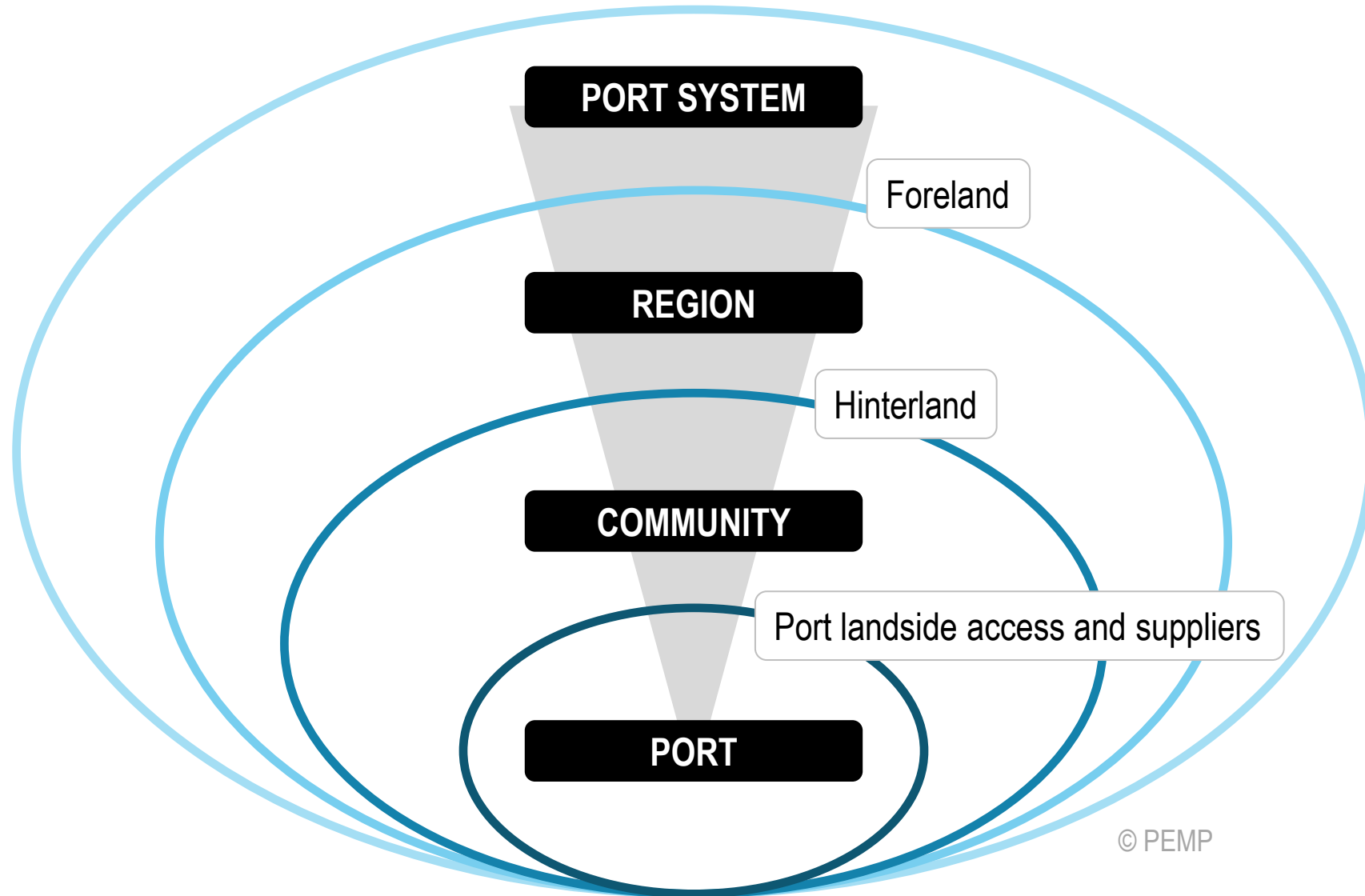


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1. Defining port governance

- Port governance is the adoption and enforcement of rules governing conduct, authority and institutional resources to develop and manage port activities to benefit society and the economy.

A Multi-Modal Port Governance Vision

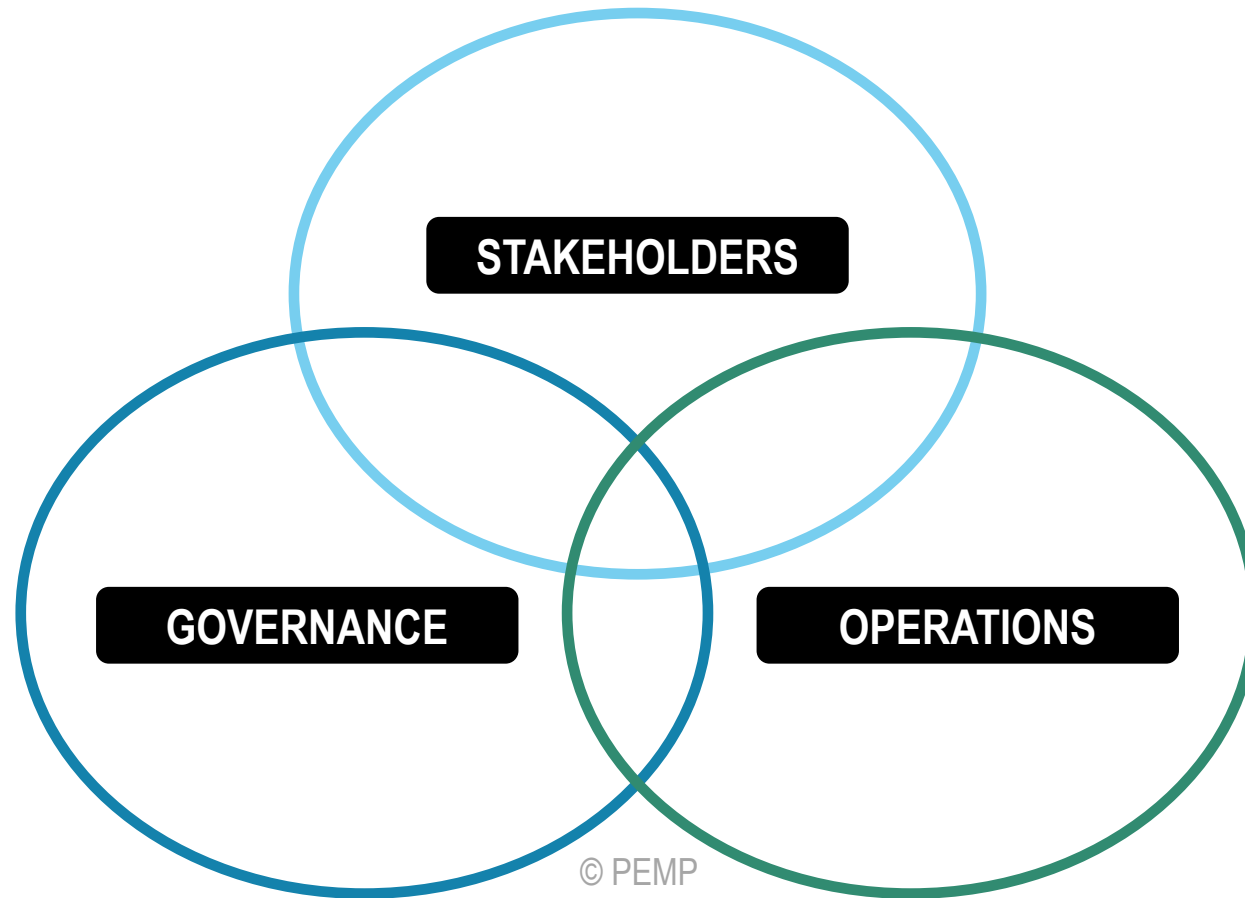


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A Broader View of Port Governance

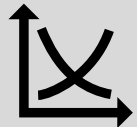


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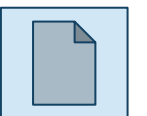
Port Governance Objectives

- Strategic objectives
 - Traffic throughput.
 - Return on investment.
 - Profits for shareholders.
 - Economic development prospects.
- The full range of objectives varies worldwide
 - Serving commercial and trading interests.
 - Complex, with multiple objectives, and having national, regional, and local impacts.
 - Balancing multiple roles and expectations.
 - Cope with government regulators (or owners), customers, local community stakeholders, and managers (or shareholders).

Port Governance Tasks

**A****PORT POLICY****B****PUBLIC AUTHORITY FUNCTIONS****C****TECHNICAL MANAGEMENT OF PORT AREA****D****MARKET AND PRICE REGULATION****E****MANAGEMENT OF CONCESSION AGREEMENTS****F****MANAGEMENT OF EMERGING ISSUES**

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Port Governance Tasks: Port Policy Formulation

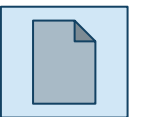


A

PORT POLICY FORMULATION

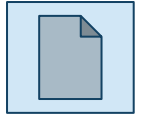
- A.1** Define, develop and implement national ports policy.
- A.2** Co-ordinate all public sector agencies exercising port-related competences.
- A.3** International representation (e.g. IMO).
- A.4** Adopt national strategy / master plan.
- A.5** Approve master plans (submitted by operators).
- A.6** Approve development plans (submitted by operators).
- A.7** Co-ordinate local and hinterland transport policies.
- A.8** Coordinate structure and budget of port authority.
- A.9** Adopt environmental legislations.
- A.10** Organize and facilitate consultations on port policy.
- A.11** Maintain port statistics.
- A.12** Carry out strategic studies.

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Port Governance Tasks: Public Authority Functions



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B

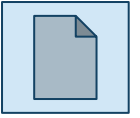
PUBLIC AUTHORITY FUNCTIONS

- B.1** Adopt and enforce security regulations.
- B.2** Adopt pilotage regulations (potentially providing pilotage services).
- B.3** Adopt towage regulations.
- B.4** Approve mooring regulations (submitted by port operators or mooring services).
- B.5** Provision of vessel traffic services.
- B.6** Lighting, marking of channels, buoying, including inspections.
- B.7** Inspect & survey navigability of maritime access routes (outside port areas).
- B.8** Works to maintain navigability outside the port (including dredging).
- B.9** Erect and maintain shore-based radar system.
- B.10** Providing nautical weather information.
- B.11** Administrative management of ISPS compliance by ship/port operators
- B.12** Management of mandatory ship reporting regimes (receiving, storing & transmitting ship data, e.g. dangerous goods).
- B.13** Waterborne safety and security patrols.
- B.14** Inspect waste reception facilities; law enforcement related thereto

- B.15** Port State control.
- B.16** Immigration control.
- B.17** Land-based health and safety inspections.
- B.18** International sanitary control / Veterinary inspections.
- B.19** Fire-fighting.
- B.20** Adopt emergency / incident / contingency plans.
- B.21** Adopt Safety Management Systems (proposed by the operators).
- B.22** Adopt plans, rules and measures to prevent damage to submarine pipelines.
- B.23** Intervene and assist in emergency situations.
- B.24** Investigation of and reporting on incidents.
- B.25** Provision of search and rescue services / MRCC.
- B.26** Granting and refusing access to places of refuge (incl. consulting with port operators / harbor masters).
- B.27** Enforce heritage laws / Protect underwater heritage.
- B.28** Customs formalities, inspections and enforcement.

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Port Governance Tasks: Technical Management of Port Area



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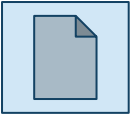
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TECHNICAL MANAGEMENT OF PORT AREA

- C.1** Decide on modifications of the public land assigned to ports.
- C.2** Issue building permits.
- C.3** Approve proposed acquisition of land.
- C.4** Issue environmental licenses and authorizations.
- C.5** Provide berths for public authority or public services.
- C.6** Manage and operate special customs warehouses or areas (if any).
- C.7** Maintain and manage real estate outside commercial port area.
- C.8** Manage heritage in port areas.
- C.9** Redevelop real estate outside commercial port area for new uses (residential, tourist, cultural etc.).
- C.10** Provide public transit to and from the port area.

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Port Governance Tasks: Market and Price Regulations



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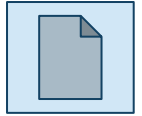
D

MARKET AND PRICE REGULATION

- D.1** Issue and monitor licenses & authorizations
- D.2** Issue guidance/approve structure of tariffs for infrastructure charges
- D.3** Issue guidance/approve structure of tariffs for certain service charges
- D.4** Regulate fees for sub-concessions, sub-leases granted by the port operator to third parties
- D.5** Monitor port market, competitiveness, and price levels
- D.6** Ensure validity of reports on quality of service
- D.7** Receive, investigate, and rule on complaints by operators and/or users
- D.8** Issue prohibitions / impose fines for breaches of competition law (or sector-specific market rules)
- D.9** Receive and investigate complaints by operators and/or users and forward to regulators
- D.10** Open ex officio investigations
- D.11** Manage arbitration cases between operators and users

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Port Governance Tasks: Management of Concession Agreements



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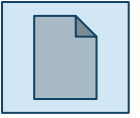
E

MANAGEMENT OF CONCESSION AGREEMENTS

- E.1** Monitor general compliance with and manage concession agreements.
- E.2** Monitor compliance with Service Level Agreements.
- E.3** Monitor compliance with public service obligations.
- E.4** Monitor implementation of business plan of concessionaire.
- E.5** Manage financial aspects of concession agreements (performance guarantees, concession fee, auditing).
- E.6** Evaluate functioning of concession agreements.
- E.7** Receive and respond to requests for amendments / re-negotiations.
- E.8** Enforce concession agreements in case of breaches (incl. imposition of fines, suspension, termination).
- E.9** Receive / investigate complaints, breaches of Concession Agreement.
- E.10** Organize and/or facilitate consultations on port operations (User committees).

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Port Governance Tasks: Management of Emerging Issues



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F

MANAGEMENT OF EMERGING ISSUES

F.1 Advancing port collaboration on strategic issues.

F.2 Cybersecurity.

F.3 Responses to vertical integration.

F.4 Integration of transport modes.

F.5 Digitalization.

F.6 Sustainability.

F.7 Energy transition.

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B. Reforms in Port Governance



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Waves of Port Reforms

- Increased autonomy of ports
 - Most ports were publicly owned and operated.
 - In the 1990s, the first waves of reforms took place to expand the role of private actors.
 - Devolution of port management and operational responsibility.
 - Public sector retains a supervisory and monitoring role.
 - The port is free to set its strategic objectives and respond to national initiatives.

Types of Port Reforms

- Privatization

- Full transfer of asset ownership (including land) to a privately owned for-profit entity.
- The retained role of the government is to regulate the transferred entity.
- Very few countries, such as the UK and New Zealand, have implemented a fully privatized port governance system.

- Commercialization

- Governments withdraw from operating infrastructure while retaining ownership.
- The most common port governance model worldwide.
- Concessions of rights to manage and operate terminals or provide port services to third parties.

Types of Port Reforms

- Decentralization
 - Decentralization of oversight responsibility from the national to the local level.
 - Increases local responsiveness and flexibility
 - Includes transferring ownership to a local government entity.
- Corporatization
 - A form of commercialization involves creating a separate legal corporate entity.
 - Takes on the legal responsibility to provide the functions mandated in its charter or by-laws.
 - Creation of a legal entity with shareholding.
 - The government remains the majority shareholder.
 - Key governance model imposed in many countries.



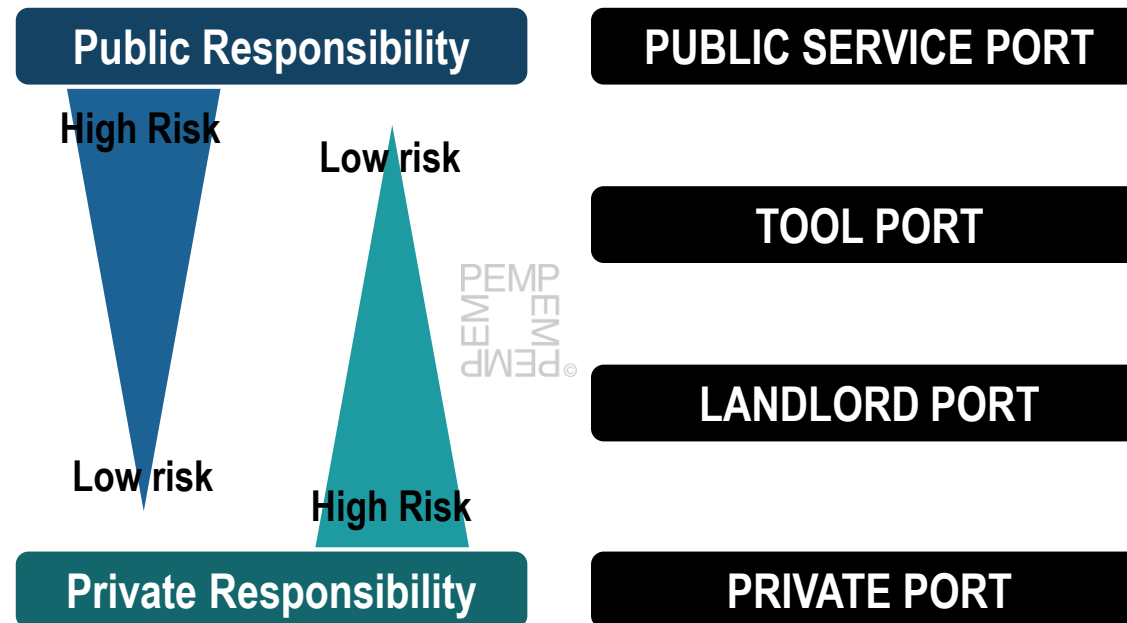
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C. Port Governance Models

Main Port Governance Models



Public and Private Roles in Port Management

- Public service ports
 - The port authority performs the whole range of port-related services.
 - Owns all the infrastructure.
 - Commonly a branch of a government ministry.
 - Most of their employees are civil servants.
 - Some ancillary services can be left to private companies.
 - Because of the related inefficiencies, the number of public service ports has declined.
- Tool ports
 - Every aspect of a public service port.
 - Private handling of its cargo operations.
 - Port authority still owns all or part of the terminal equipment.
 - Can be a transitional form between a public service port and a landlord port.

Public and Private Roles in Port Management

- Landlord ports
 - Most common management model.
 - Infrastructure, particularly terminals, is leased to private operating companies.
 - Port authority retaining control of the land.
 - The most common form of lease is a concession agreement.
 - Private companies granted a long-term lease in exchange for rent.
 - Private port operators provide and maintain their superstructure, including buildings.
 - The private operator responsible for providing terminal equipment to maintain operating standards.
 - Dominant port model in larger and medium-sized ports.

Public and Private Roles in Port Management

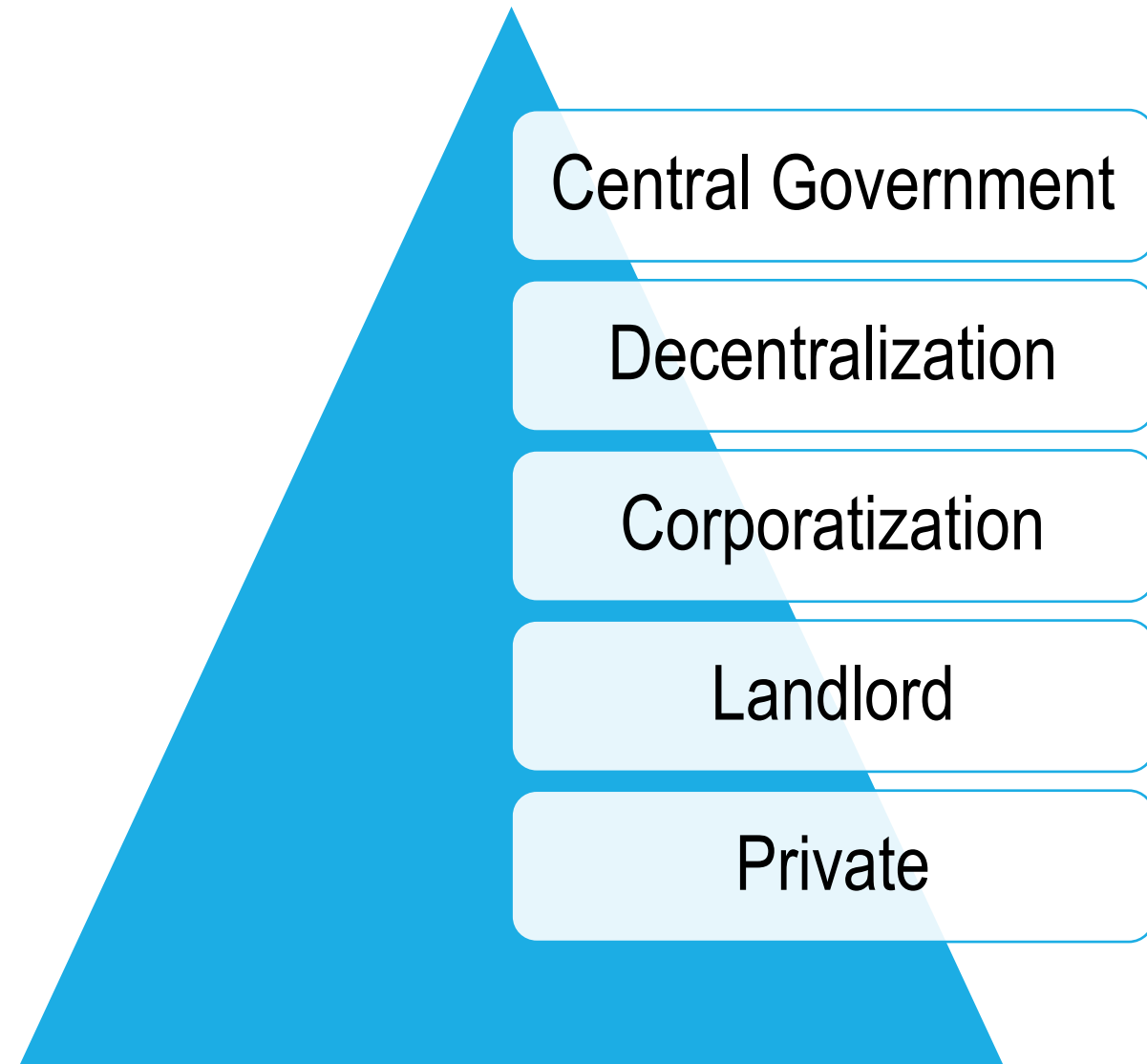
- Private service ports
 - Complete privatization of the port facility.
 - Mandate that the facilities retain their maritime role.
 - The port authority is entirely privatized.
 - Almost all the port functions under private control.
 - Public sector retaining a standard regulatory oversight.
 - Public entities can be shareholders.

Public and Private Roles in Port Management

	Public service port		Tool port		Landlord port		Corporatized port		Private service port	
Ownership	Public responsibility									
Port administration							Private responsibility			
Nautical management										
Port infrastructure										
Superstructure										
Cargo handling										
Pilotage										
Towage										
Mooring services										
Dredging										

The Dominance of Public Ownership

- Central government-owned
 - Central government management and control.
- Government-owned
 - Management and control are decentralized to a local government body.
- Government-owned (national, regional, or municipal) but managed and controlled by a corporatized entity.
- Government-owned but managed by a private sector entity
 - Concession or lease arrangements.
 - Owned and managed via a public-private partnership agreement.
- Wholly privately owned, managed, and controlled.



The Use of Concessions

- Port concession
 - Contractual agreement.
 - Government or port authority grants a private company the right to operate and manage a specific port terminal or part of a port.
 - Responsibility to invest in infrastructure, maintain facilities, and provide services to shipping lines for a set period of time (15 to 30 years most common).
 - Terminal operator sets its fees according to market principles.
 - Port authority gets revenue:
 - Fixed rent per surface.
 - Lump sum.
 - Royalty depending on cargo volume.
 - For improving port efficiency and attracting investment.
 - The private company (concessionaire) takes on the operational duties of a port area while the government retains ownership of the land and assets.

Two Container Terminal Concessions at Busan New-Port





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D. Port Authorities



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1. Defining a Port Authority

- A port authority is a public or a private entity that, whether or not in conjunction with other activities, under national law or regulation is empowered to carry out:
 - Administration.
 - Development.
 - Management.
 - Operation (occasionally) of the port land and infrastructure.
 - Coordination and control of port operation activities.
- The first port authority, London (1908)
 - Consolidation of harbor facilities along the Thames River.
 - Set a model that was followed by others.
 - Port Authority of New York and New Jersey (1921).

The Rationale for Port Authorities

- Manage property rights in waterfront areas
 - Available real estate for port activities can be scarce and subject to competitive forces.
- Plan port development
 - Accommodate traffic expectations.
- Provision of public goods
 - Navigation safety cannot be denied to users who are consuming services that are unlikely to be provided by the market.
- Take into account both positive and negative externalities
 - Noise, dust, traffic congestion, and emissions.
- Promote the efficiency of local monopolies
 - Potential to generate economic rents.

The Strategic Goals of Port Authorities

- Promote competitiveness
- Contribute to local, regional, and national economic growth
- Create employment (direct and indirect effects)
- Facilitate trade
- Maximize throughput volumes
- Maximize the added value of the port as a whole or to specific customers
- Generate income and profits
- Integrate ports with their foreland and hinterland
- Promote sustainability (emissions and energy-efficiency)



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E. Functions and Responsibilities of Port Authorities

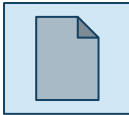


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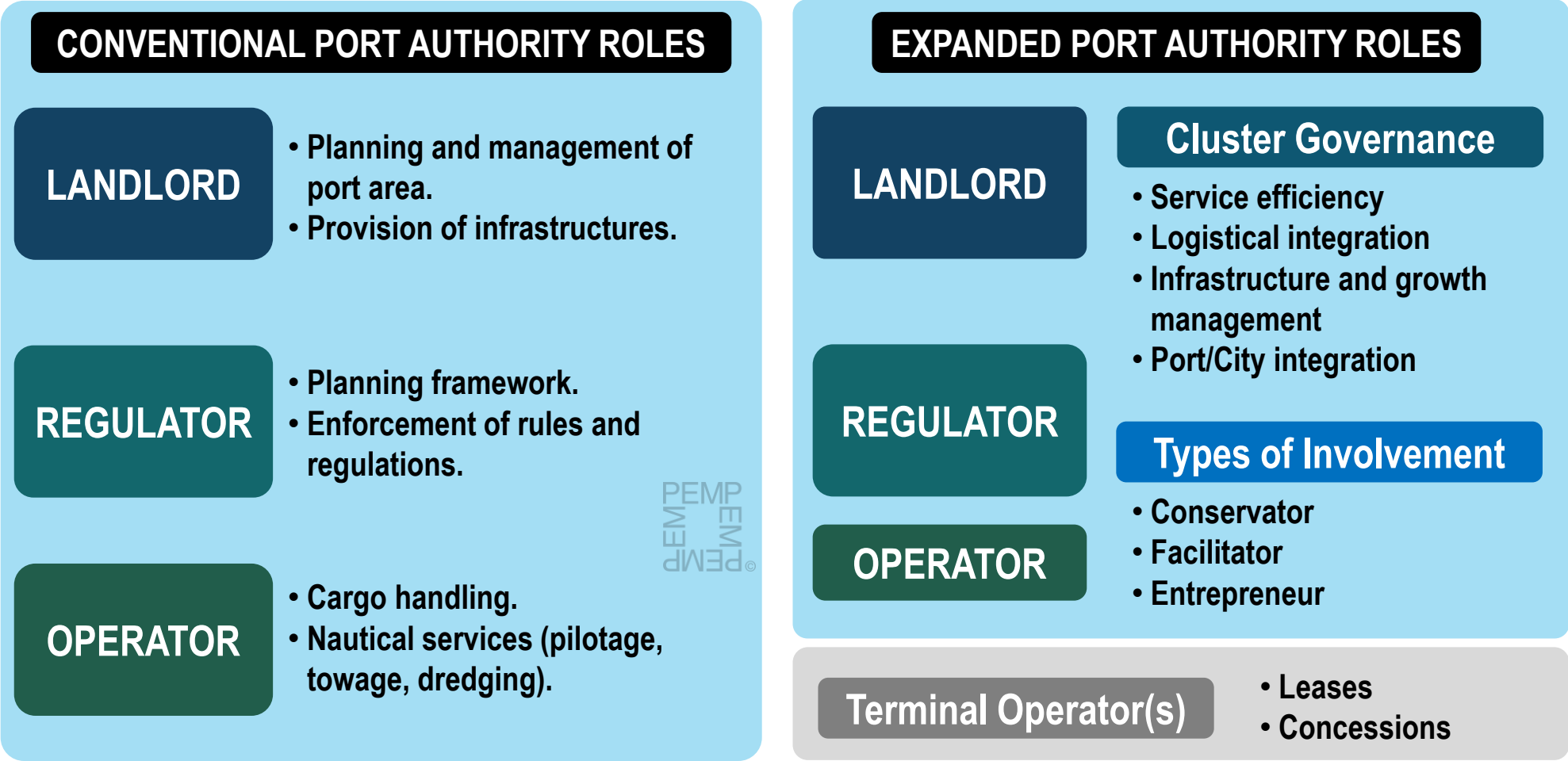
Conventional Role of Port Authorities

- Landlord
 - Manages port assets under its jurisdiction.
 - Provision of infrastructure, such as piers and the dredging of waterways.
 - Use and levy public funds.
- Regulator
 - Sets the planning framework, namely fees, subcontracting services, and safety.
 - Enforcement of national and port-related rules and regulations.
- Operator
 - Provides day-to-day services to ships (e.g. pilotage and towage) and merchandise (e.g. loading/unloading and warehousing).

Emerging Paradigm in the Roles of Port Authorities



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The Main Activities of Landlord Port Authorities

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Traffic Management



- Vessel traffic management (fast turnaround, security, reliability).
- Management of inbound and outbound inland traffic.
- Partnership with barge, rail and truck operators for inland distribution.

Area Management



- Develop transport infrastructures.
- Provide space for port-related activities (expansion or reconversion).
- Rationalize land use.

Customer Management



- Attract new customers.
- Retain existing customers (satisfaction).
- Find new added value activities.

Stakeholder Management



- Influence regulation.
- Relations with local, regional and national public agencies.

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The Port Authority as a Landlord

- The dominant model in larger and medium-sized ports: Involves private sector operations in the port area
- Responsibilities:
 - Manages public infrastructure and advances the prospects of the entire port cluster.
 - Curator and the authorized manager of the port land and adjacent aquatic surfaces to be leased to the private sector.
 - The regulatory body responsible for the technical management of the port area and several public authority functions.
 - Port operations (especially cargo handling) are carried out by private companies.
 - Infrastructure is leased to private operating companies and industries.
 - Private port operators provide and maintain their superstructure:
 - Buildings (e.g., offices, sheds, warehouses, container freight stations, workshops) and dock labor.

The Port Authority as a Landlord

- Conservator
 - Focus on the port ecosystem, the application of rules and regulations, and maintaining overall functions.
 - Passive traffic, real estate, and area management.
- Facilitator
 - Interaction between economic and societal interests within the port and beyond its perimeter.
 - Engage in strategic regional partnerships.
- Entrepreneur
 - Combining the main features of the facilitator with a more commercial attitude.
 - Advance the prospects of the port(s) they manage.
 - Setting up independent branches involved in the development of new lines of business.
 - Energy generation, real estate (commercial and residential), and services.

Port Authority Marketing Strategies and Stakeholder Types

COMMERCIAL	INSTITUTIONAL	COMMUNITY
Traffic and investments	Policy and regulations	Public relations
<ul style="list-style-type: none">• Lessees (terminals, logistics facilities, industrial sites, commercial real estate)• Carriers (container, ro-ro, bulk)• Cruise lines• Port service providers (bunkering, towing)• Logistics operators• Shippers• Road, rail and barge operators• Inland ports	<ul style="list-style-type: none">• Governmental institutions• Trade and investment agencies• Financial institutions• Trade groups• Municipal governments• Regional and provincial governments• Non-governmental organizations	<ul style="list-style-type: none">• Employees and labor unions• Special interest groups• Port-related economic activities (trade, manufacturing, tourism)• Foundations• Tourists and passengers 