

CONFERENCE

Hinterland Connections of Seaports

The Role of Seaports as a Link between Inland and Maritime Transport

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Role of Seaports

- Maritime links for islands
- Points of interconnection between sea transport and other modes of transport
- A seaport and its hinterland forms an intermodal transportation system, in which the port serves both its local and interior (hinterland) regions (A.Zhang,2008)
- Ports shall provide
 - Infrastructure, equipment and services to transport operators
 - Infrastructure with a range of services to ships
 - Transport Infrastructure
 - Transshipment facilities for intermodal transport

- The constant increase of cargo movements are stressing ports and their hinterland transportation systems.
- At the same time containerization and port commercialization intensify port competition
- US port managers' greatest concern in port capacity expansion planning is **the capacity constraint imposed by local roads***

*Survey conducted by Maloni and Jackson (2005)

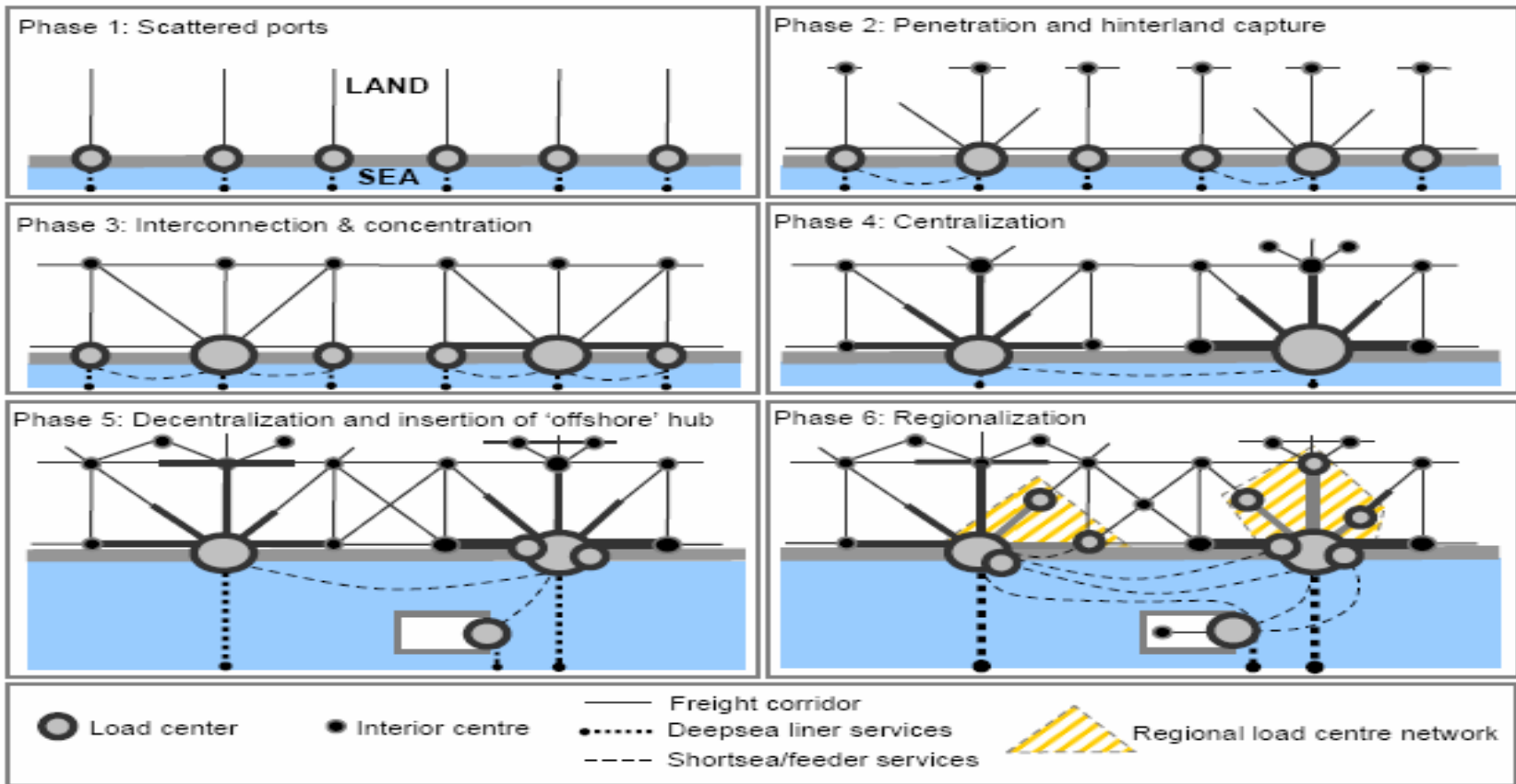
Reference : A.Zhang “ The Impact of Hinterland Access Conditions on Rivarly between Ports”

- The development of better hinterland connections in many cases has become as important as the port facilities themselves to secure additional traffic*
- The Seaport- hinterland interaction plays an increasingly important role in shaping Supply chain solutions of shippers and logistics service providers**

*Jean-Paul Rodrigue, Theo Notteboom “Challenges in the Maritime-Land Interface: Port hinterlands and Regionalization”

**Professor Theo Notteboom “The relationship between seaports and the intermodal hinterland in light of global supply chains: European Challenges”

The Spatial Development of a Port System



Regionalization: Inland distribution of foremost importance in port competition, favoring emergence of transport corridors & logistics hubs

Source: Jean-Paul Rodrigue, Theo Notteboom "Challenges in the Maritime-Land Interface
Port hinterlands and Regionalization"

Hinterland

- A hinterland is the area over which a port draws the majority of its business
- Hard/Unfeasible to delimit the hinterland of a port. It varies with respect to:
 - Commodity (cf. bulk versus containers)
 - The time (cf. seasonable impact, economic cycles, technological changes, changes in transport policy, etc.)
 - Transport mode
- Market dynamics renders the static concept of port hinterlands risky

Reference: Professor Theo Notteboom “The relationship between seaports and the intermodal hinterland in light of global supply chains: European Challenges”

Port hinterland access

- Ports have become links in global logistic chain (Robinson,2002)
- Competition between ports has moved to competition between transport chains (Notteboom & Winkelmanns, 2001)
- Costs of hinterland transport usually higher than maritime transport and port costs combined
- Most ports cannot rely on cargo from their captive hinterlands - Ports need to be competitive in contested hinterlands
- A port with a strong local cargo will sooner or later be tempted to increase the inland penetration of its intermodal offer so as to increase its capture area.

References: P. De Langen “ Ensuring Hinterland Access: The Role of Port Authorities”, Professor Theo Notteboom “The relationship between seaports and the intermodal hinterland in light of global supply chains: European Challenges”

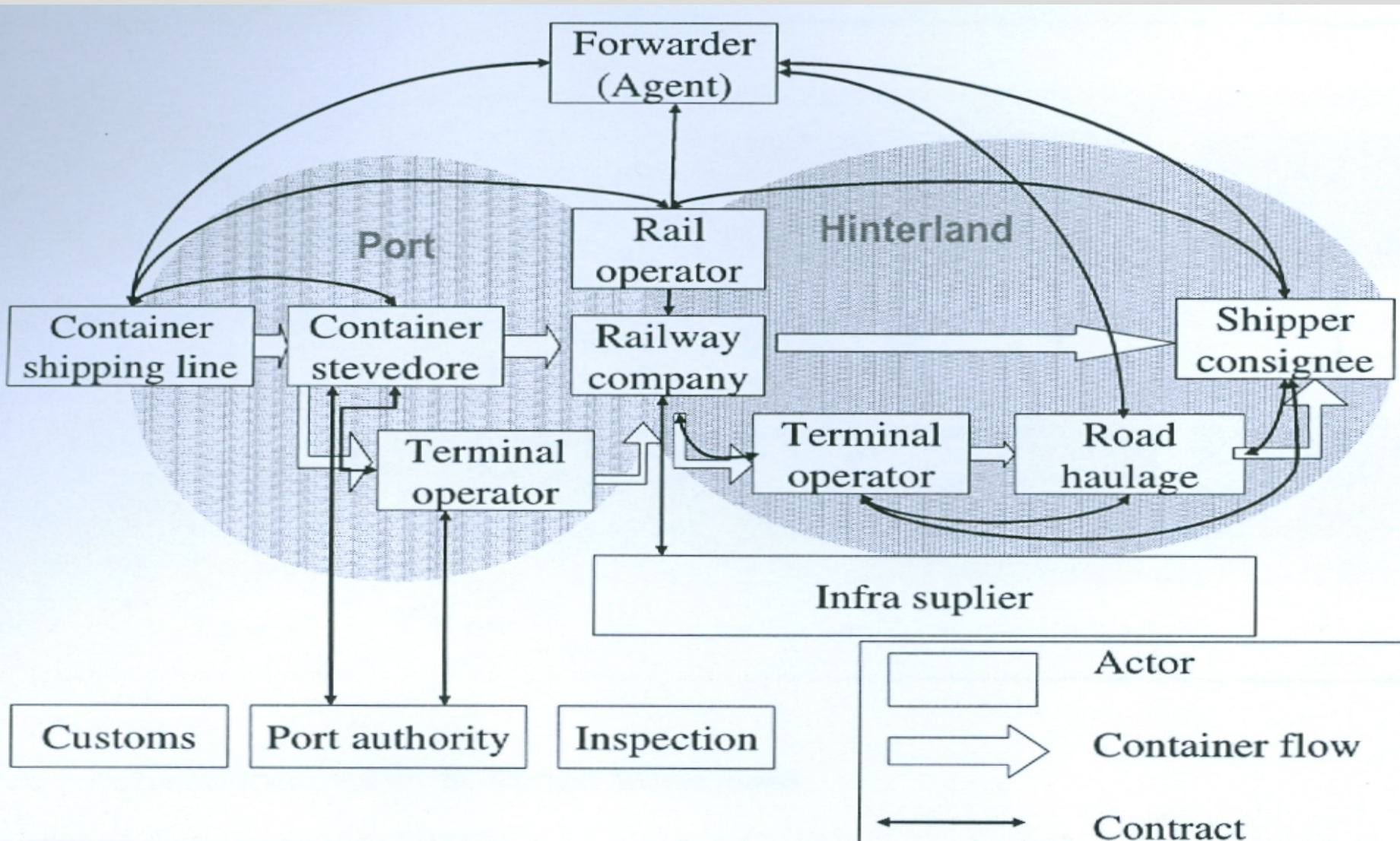
Actors in Hinterland Access

- Solutions to improve access do not emerge spontaneously (market forces, public investments) – require active involvement of the Port Authority
- The quality of port's hinterland access depends on:
 - Terminal operators
 - Freight forwarders
 - Container operators
 - Port Authority

Reference: P. De Langen “ Ensuring Hinterland Access: The Role of Port Authorities”, International Transport Forum, Discussion Paper No2008-11

The relevant actors in the rail hinterland chain

(Source: Van der Horst and De Langen, 2008)



Cooperation, logistics integration

- In the 1990s strong urge for modal shift by policy makers
- **Recent years: a clear market- driven interest from the users and suppliers of intermodal services (market driven) - more initiatives aimed at a better coordination**

Shipping lines and the hinterland

- Inland costs share an increasing part of the total cost of container shipping (40-80%).
- Thus, the importance of transport costs shifts from vessels costs to landside costs.

Shipping lines and the hinterland

- A number of shipping lines have gone rather far in providing rail services.
- Maersk Line owns European Rail Services (ERS) and has a shareholding in BoxXpress (joint venture with Eurogate)

Shipping lines and the hinterland

- The inland strategy of shipping lines includes the usage of inland terminals and inland depots
- Inland terminals, rail and barge services combined to push deep-sea containers as fast as possible from the ocean terminal to an inland location.

Conditions for Efficient Hinterland Access

1. Well developed infrastructure to the hinterland
2. Transport infrastructure efficiently used
3. Well coordinated transport chains
4. Sustainable hinterland transport system
5. Attractive services provided

Reference: P. De Langen “ Ensuring Hinterland Access: The Role of Port Authorities”,
International Transport Forum, Discussion Paper No2008-11

Port Community System

- An effective port community system contributes to coordination in transport chain.
- The benefits of data exchange especially relevant in hinterland transport chains
- Bottleneck: Small firms (forwarders, trucking companies) involved in hinterland transport
 - Lack of resources and incentives to invest in data exchange systems
 - Problems during the arrival of trucks at the terminal and during the collection of containers as a consequence of insufficient data exchange

Reference: P. De Langen “ Ensuring Hinterland Access: The Role of Port Authorities”, International Transport Forum, Discussion Paper No2008-11

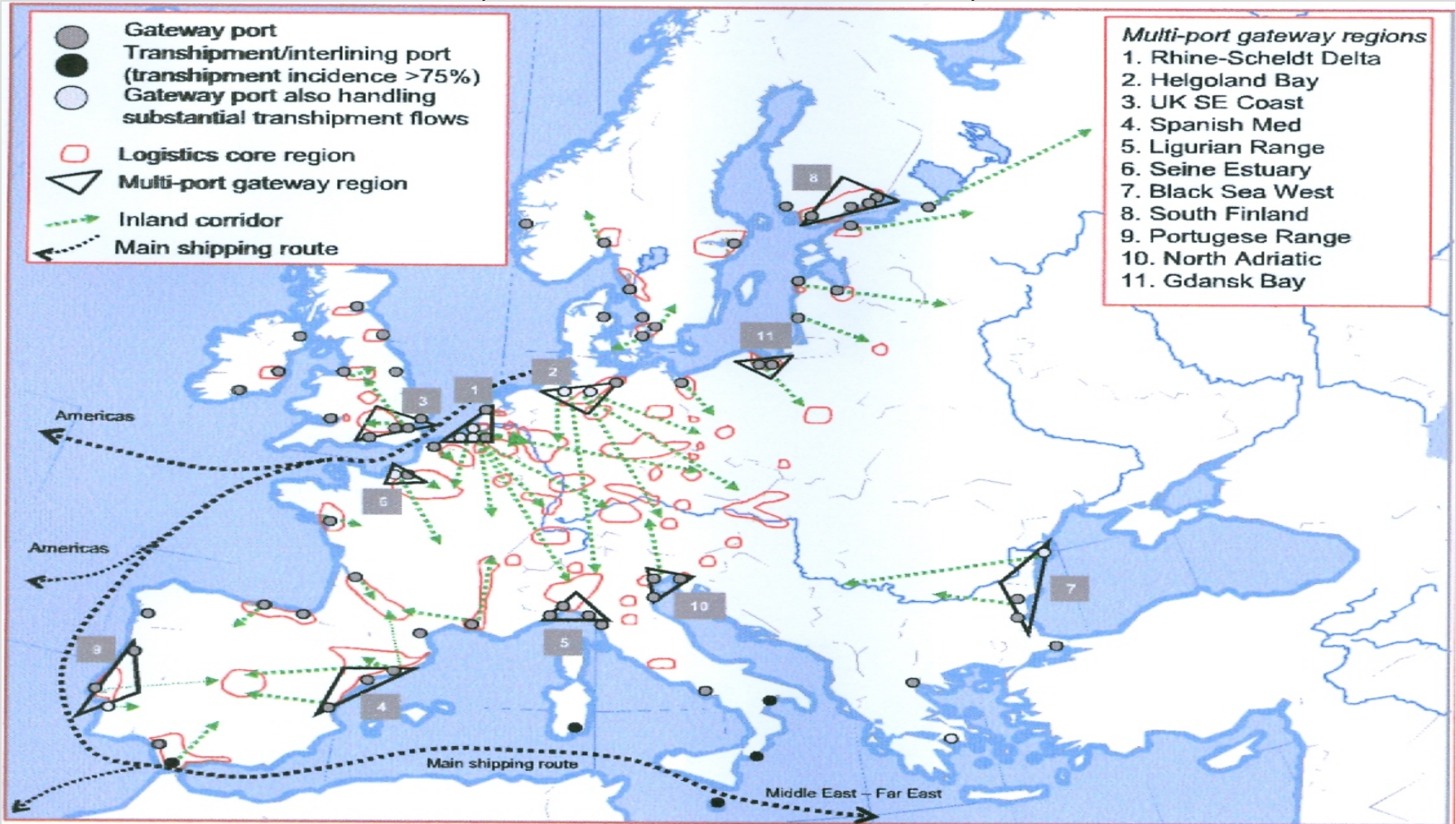
Port Community System

- **Examples of ports having port community system:** Rotterdam, Antwerp, Barcelona, Singapore
- In all these cases, the companies in the port and the port authorities involved.
- Such investments expected to increase due to:
 - Increasing pressure on hinterland infrastructure
 - Focus on well coordinated transport chains

Reference: P. De Langen “ Ensuring Hinterland Access: The Role of Port Authorities”, International Transport Forum, Discussion Paper No2008-11

The European container port system and logistics core regions in the hinterland

(Source Notteboom- ITMMA)



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Overview of the main multi- port gateway regions in Europe, transshipment hubs and stand- alone gateways

Countries without direct access to the sea

The case of Hungary:

Connection to sea ports

- Several scheduled block railway lines connect Hungary to the sea ports of Hamburg, Bremen and Rotterdam on the North Sea, to Koper and Trieste on the Adriatic.
- The ports on the Adriatic are also connected to Pan-European Transport Corridor V which runs south-west to north-east.
- Lead time to Záhony from these ports is within 24-48 hours by road or direct rail connection.
- Záhony is a road and railway interchange and reloading centre along Pan-European Transport Corridor V.

Countries without direct access to the sea

The case of Austria

- The A9 (E 57) motorway, "Pyhrn Autobahn", links Austria with its southern neighbours and is an international transit route to Italy, Slovenia and Croatia.
- The Rhine-Main-Danube Waterway has turned the Danube into an efficient shipping link with Western Europe and the North Sea ports.

Motorways of the Sea

- Intermodal maritime-based logistics chains in Europe, more sustainable, commercially more efficient, than road-only transport.
- Improve access to markets throughout Europe, and bring relief to the over-stretched road system.
- Fuller use will have to be made of the maritime transport resources and of the potential in hinterland connections, as part of an integrated transport chain.

Infrastructure related to MoS

- Port infrastructure inside the port area
- Transport infrastructure inside the port area
- Transport infrastructure linking the port to the hinterland transport network
- Access to the port from waterways

Inland access

- Port inland access remains a key problem for the majority of ports
- There are still ports with significant freight MoS potential where inland access is still inadequate or given a relatively low priority
- Higher urgency and more resources have to be allocated to the solution of these problems

Italy- Turkey case study

Turkey – Italy (Ro-Ro routes):

- Pendik – Trieste,
- Ambarli – Trieste
- Cesme – Trieste
- **Mode integration: Road-Sea-Road**



Trieste

Kırım

Novorossiskiy

Sochi

Poti

Samsun

Ambarlı

Zonguldak

Haydarpaşa

Trabzon

Rize

Ceşme



Main Strengths

- Strategic position of Trieste: the port is a direct entrance to all EU countries
- Road and railway connection :trains departing from Trieste to Salzburg, capable of carrying 20 vehicles
- Enhancement of transport of semi-trailers only (the tractor of the complete unit is left behind and semi-trailers are boarded onto the vessels). Then, semi-trailers are coupled with the tractor units located in the surrounding of Trieste port.

Main strengths - Innovative aspects

- Transfer of drivers by air and bus
- Customization of vehicles prior to their arrival in Trieste
- Pendik Ro-Ro terminal: solely dedicated for the use of Ro-Ro vessels, owned and operated by UN Ro-Ro Group of Companies. Previously, Ro-Ro operations were carried out from a port situated in the heart of the city, where congestion of traffic was at maximum level
- Electronic Lodging of Customs Transit Declarations

Main strengths

- The transport company's themselves (as opposed to dock workers) are responsible for loading and discharging the ships in the new Ro-Ro terminal area of Pendik. As shareholders, the road operators also benefit through receipt of dividends at the end of the year (freight rates per trailer are the same for all transporters/shareholders).
- This involvement of the road operators as investors, shareholders and operators of the Ro-Ro link demonstrates how effective such cooperation can be, and offers a very good example of how problems associated with road transport can be tackled and overcome.

Barriers and problems

- Congestion of the road connection between the port of Trieste and the highway.
- The port of Trieste over the 2008-2012 period planned several interventions aiming to overcome the lack of efficient road connections to the port system and realize a logistic hub to support the port activities

Italy-Spain case study

- Geographical area: Barcelona-Civitavecchia



Mode integration: Road-sea integration

Main strengths

- A clear port strategy of both ports to increase port capacity
- Both ports serve hinterlands with high industrial and logistic potential
- Both ports are heavily investing in infrastructure and services to promote their Short Sea Shipping connections
- High quality service for both passengers and freight
- Main weaknesses: Congestion, need to improve rail and road access to the ports



Thank you