

# International cooperation of port authorities

---

*The strategic position of port authorities regarding the representation of the needs of their customers in the international domain.*

**Abstract: This bachelor thesis is the final work of the author in his bachelor of Economics and Business Economics at the Erasmus University Rotterdam. In this thesis, a model is provided for categorising the role port authorities play in developing strategies to connect the port with the international market, to facilitate the needs of the private parties in the port and create investment and business options outside the own port. The model categorises the partners with whom the port authority can cooperate, the modes of cooperation and the attitude of the port authority towards possibilities of cooperation. The thesis further tests the model on a sample of ports: Durban, Rotterdam, Hong Kong, Long Beach and São Paulo.**

ERASMUS UNIVERSITY ROTTERDAM, ERASMUS SCHOOL OF ECONOMICS  
BACHELOR THESIS AT THE FACULTY OF URBAN, PORT AND TRANSPORT  
JENTE WAAL, STUDENT NO. 334460

UNDER SUPERVISION OF:

DR. MICHIEL NIJDAM, SENIOR RESEARCHER AT THE ERASMUS UNIVERSITY IN ROTTERDAM

## Index

1. Introduction .....	3
2. Port models on internationalisation.....	5
2.1. The role of a Port Authority .....	5
2.2. Port models .....	6
3. Port orientation in a globalising landscape .....	11
3.1. Strategic subjects .....	11
3.2. Modes of co-operation.....	13
3.3. Levels of assertiveness of port authorities .....	17
4. Model testing on a selection of ports .....	21
4.1. Selecting ports: considerations .....	21
4.2. Port of Durban .....	21
4.3. Port of Rotterdam .....	23
4.4. Port of Hong Kong .....	24
4.5. Port of Long Beach.....	26
4.6. Port of São Paulo .....	27
5. Discussion .....	29
5.1. Applicability of the model.....	29
5.2. The term 'internationalisation' .....	29
5.3. Valuing factor compliance .....	30
6. Concluding remarks .....	31
7. Reference list.....	32

# 1. INTRODUCTION

From a simplified perspective, ports are regarded as physical places where goods are transferred from the shore onto a ship or vice versa. That this description is oversimplified becomes clear when one enters today's port environment in for instance the Port of Rotterdam. Highly structured processes make it possible that millions of tonnes of goods and commodities are off-loaded and transported in the right mode to the right place. Perhaps the adjustment of the simple description of a port should also result in an adjustment with regard to the spatial component. A port is not necessarily bound to its physical space, but can perform port functions also outside the physical space of a port. And that is the core topic of research in this paper:

*How do port authorities interact with other port authorities to perform their port functions and influence their market position?*

The relevance of this research appears most clearly from the race to the bottom on the market of transportation. It is relevant to deliver goods and commodities as efficient as possible to the customers, to lower the transportation costs and therefore the overall costs of the product. One element in this chain is the port. In the globalising market, the port has to comply to customer needs, in this case efficiency and low costs, to maintain its position as a port of throughput or to accrual new streams of cargo.

Secondly, the cooperation of port authorities reflects the globalisation effect in a different way. The globalisation and containerisation, albeit a unification of the measurements of cargo, created new fields of competition for the transportation companies. Not only was the performance of their part in the supply chain decisive for their competitive position, so was the performance of the other parts of the supply chain. The client only focuses on the result: the time and the price of deliverance.

Therefore, in recent years multimodal transportation, in which the transportation is meant to be a fluent and efficient chain of transportation over diverse modes, has come up as the crux in transportation. Port authorities cannot stay behind without losing competitive advantage, and have to guarantee efficiency and coordination of traffic flows in their ports. This does not necessarily has to start when the ship enters the port, but with cooperation the port authority can already have influence over the total route of the ship coming to their port.

At last, competition in each market cannot be maintained to the bitter end, because this will result in minimal profit margins, or an oligopolistic market. The public tasks of the port authority, except in the case of a private port, imply a duty for port authorities to maintain control over their port, in which cooperation with other port authorities can be meaningful. Moreover, the community is only benefitted by a port authority that renders profit or accruals more cargo traffic. The competitive advantage of a port authority can be strengthened by diplomatic relationships and cooperation with other ports or its clients.

Defining the various modes of cooperation, the partners with whom to cooperate and the attitude of a port authority towards cooperation can mean a great deal for private parties in choosing the port of berth for long-term relationships. For the community, these elements can create new investment possibilities and access to new markets. Also, one could understand when in a free-trade region such as the European Union, a certain level of cooperation between ports would be required to serve the interests of the consumers and protect the continued trade in necessary commodities such as crude oil. In this light, the involvement of the Port of Rotterdam in the Port of Sohar (Oman) can be a good example of ensuring good ties with the region of interest and therefore protecting supply flows. To start in this thesis, I regard the traditional port models as formulated in the literature. These models are sometimes not complete enough to involve current developments of multimodal transport and internationalisation, and are therefore only partly useful for port authorities to formulate a growth and development strategy. The World Bank has formulated port models, but these leave the port authorities in the blind which roles they can take in the internationalised market and what their public duties imply in this regard. This thesis does not try to replace the previous models with a better one, but will try to complement on these.

An overview of the current models will give the starting point for this thesis, followed by a categorisation, partly on the basis of literature. This categorisation will define the three elements: the partners with whom to cooperate, the various modes of cooperation and the attitude of the port authority. These categories will be defined on the basis of distinctive characteristics and (dis)advantages of the categories.

The model will consequently be tested on a geographically broad set of ports. By interpreting account statements, publications and literature an image will be drawn of the internationalisation strategy of the port authority. This sample will serve as an example of the implementation and application of the model.

## **2. PORT MODELS ON INTERNATIONALISATION**

The role of a port today, has changed from its role in the past. Where the port was a market place for merchants in the region, it is now an intrinsic part of the logistical supply chain. Nor is there a limitation for the port region any more: it can involve trade routes from all parts of the world. The changing role of the port makes that we have to reinterpret the role of the port authority in today's port. In this chapter, we provide a classification of port authorities, for which we will try to determine their position and strategy for the globalisation effects.

### **2.1. THE ROLE OF A PORT AUTHORITY**

The role of the port authority is highly dependent on the structure chosen by the government of the port. In a more public approach, the government has allocated more functions at the port authority, than in a highly privatised port. Though, there are several common characteristics in the port authority's functions.

The function of ports is to transport goods from the sea to the hinterland or vice versa. The port of today is an element in a supply chain. (Robinson, 2002, p. 252) This implicates that the competition of a port is influenced by the supply chain in which it operates (Robinson, 2002, p. 248) To perform this function at its best, a port's goals should be to provide efficient transport of goods. Though, since a port operates in supply chains, it is dependent on the efficiency and competitiveness of the other elements in the supply chain.

A port though cannot be regarded as a normal economic element or entity. As we will see later on, the full privatisation of a port might involve that the community remains with little influence on the port's policies. From the perspective of ownership and capitalism, this is justifiable, since the owner should have the right for strategic planning and control over its possession. But from the perspective of the community, it might have severe influence over their position, especially when the owner is not part of their community, and thus is not related to their interests. He has the control over what goods are imported and exported. In these times, in which the maritime trade forms a major part of all trade, and in the situation that countries are involved in trade over seas, this means that community's acquisition of goods and commodities and export are in the hands of one owner. A consequence like this highlights that the port is not just an element on the economic market, but also facilitator of trade, a connection with other societies, and a provider of goods and commodities from overseas.

In developing countries, the need for a port authority might rise from the need of economic or port development. Since the trade volumes are relatively low, the government has to invest in port infrastructures. Private parties are not willing to develop a port's infrastructure, since low throughput volumes cannot compensate for the costs of the modernisation. (Hilling, 1983, pp. 336-337) A government could compensate the lack of investment in the port environment, in the interest of the

long term wealth of the economy. Coordinating and performing such government investments is sometimes best performed by a port authority. Since a port authority is also focussed on port operations and port finances, the investments can be integrated in the port structure. (World Bank, 2007)

The port authority is not necessarily a regional organisation. In some countries, port administration is arranged nationally. Pending from the policy on ports, the port authority might have additional tasks, since ports can have different functions such as strategic points of military importance and provision of employment.

A common denominator for port authorities that it can be considered the leader of the port, creating at least a common platform for discussion and coordination of port planning. Since port security and navigation are almost always under the responsibility of the port authority, it makes the port authority have a distinguished position over other port actors. In some literature, this characteristic of a port authority is neglected. Though co-operation with private parties on projects in- or outside the port might be very useful, absolute equality of port authority and other port actors might lead to suppression of the port authority's role, most likely on the moments the society or other port actors need the protection of the port authority the most.

## **2.2. PORT MODELS**

The World Bank has defined the stereotypical port models in the field of maritime economics. (World Bank, 2007) In many studies, researchers adhere to this classification of port models. This classification reflects the involvement of both public and private entities in port ownership, the provision of services, the orientation and the status of dock labour. (World Bank, 2007, p. 81) Port models are not one-on-one descriptions or requirements for ports. They might differ, but the general characteristics correspond in the majority of cases for the category.

### *Service ports*

The government controls most elements in this type of port. Labour and operations are performed by the port authority, which also provides port assets. This port authority can be part of, or controlled by the national government, and is thus part of the national level of government.

The service port model is occurring less and less, but can mainly be found in developing countries. (World Bank, 2007, p. 82) As a fully public model, the policy of a port authority is highly dependent, not to say formed, by the national government. This might be the best policy for the nation as a whole, it might also endanger the well-being of the port itself since the port authority's policy possibly does not correspond with the demand from the hinterland, or the facilities required by the transporting companies.

Apparent from the United States, port pricing is very difficult for public port authorities, which are not focussed on rendering the highest profit margins. In most U.S. cases, it was required that the

government subsidised port authorities, since port prices were set below long-run marginal costs. (Wilder & Pender, 1979) In a service port, port prices can be set at a non-economic basis. A government can do so to promote export, or to improve trade volumes in the port. But on the long run, such strategies might form a public budget problem, or a lack of capacity in the port since demand is stimulated, but the port is short in finances to invest in the development of capacity or does not concentrate on port development. (World Bank, 2007, p. 84) In weaker economies a port might form a good investment for governments to promote regional trade and transport. In more developed economies, the service port model might be less useful, since the investments required in the port, and the economic attitude that is required in port governments, cannot be provided by the government.

### *Tool ports*

The government might also withdraw itself from the actual operation of port services. Private players can perform these functions. The port authority develops, maintains and operates the superstructure in the port, such as the cranes. It thus can be that two players are involved in the unloading of a ship. (World Bank, 2007, p. 82) This model might lead to more conflicts between private cargo handlers, who focus efficiency in the cargo handling operations, and the port authority, that has several other interests to adhere to, such as the employment of the local people or the safety of the operations. Moreover, the responsibility of operations might be unclear. (World Bank, 2007, p. 82)

The service port model allocates the costs for labour for a part at private operators in the port. Since infrastructural port investments are high, depreciations will form the main costs for a public port authority. In this model, on one hand the government retreats from operations, but still is involved in port planning and infrastructural development. It therefore has a double position: on one hand, it shows the wish to be more latent, on the other hand it has to take an active position in the light of the prosperous development of the port. This double position, and the involvement of two parties at the operations in a port, might cause unclear responsibilities in the port. Though, the World Bank justifiably argues that a tool port might be a good port model for a transformation to a landlord port, in a situation that the trust of the market still has to be gained. (World Bank, 2007, p. 83) Government expenses in a port diminish, and the market can be involved in the port. Mainly for developing countries with a destabilised political system, it might be a useful transition model. The market gains more influence over the activities in a port than under a fully public model.

As the Spanish case in the 1980s proves, in a tool port model it is not unlikely that the government controls a certain type of ports, and that some ports in the country are autonomous. (Nunez-Sanchez & Coto-Millan, 2012, p. 100) In Spain, port reforms first focussed on the transition from an administration-focussed port authority to a economy-focussed port authority. In 1997, control over port authorities was decentralised to the regional governments. According to this paper, this resulted in a loss in technical efficiency, possibly due to increased inter-port competition. (Nunez-Sanchez & Coto-Millan, 2012, p. 108) This points out that the decision to transform a service port into a landlord

port, through the model of a tool port, should always be answered on the basis of the local circumstances, such as hinterland connectivity and inter-port competition. The government should have a clear goal if it wants to transform the port authority this way, since insecurities in responsibility and liability in the performance of the operations might cause an economical disadvantage.

#### *Landlord ports*

The most dominant port model is the landlord port model, in which the port authority leases the land and infrastructure to private parties. These parties have responsibility over the port operations, under the conditions that the port authority places them under. Thus, private parties face the risks of economic woes and trade fluctuations. Still, the port authority has influence on the parties entering the port, and the regulations about safety and port planning.

Landlord ports are said to create more intra-port competition, according to some researchers. (Cullinane, Ji, & Wang, 2005, p. 438) This is a doubtful statement, since intra-port competition lowers profit margins for private players in the port. Van Reeve (2010, p. 88) even concludes that intra-port competition hardly occurs, due to monopolies in ports and the lower profit margins for private parties. It might be the case that regulators overemphasise the effectiveness of landlord ports with regard to intra-port competition.

Even in case we assume no intra-port competition will occur, the landlord port model distinct itself from other port models. First of all, the responsibilities of operations are allocated at private actors in the port. There is no involvement of the port authority in the performance of the operational functions. Second, the risk of investment for a landlord port authority is more limited. Though the government or port authority still has to invest in a port in the form of infrastructure such as motorways and railways, the actual port infrastructure can be build and maintained by private investors. The role for the port authority is then to grant them the right to do so by selling and controlling concessions.

#### *Private ports*

The role of the public entities is most little in private ports. The private sector provides all functions in the port, thus also regulatory functions and operational functions. The possibilities of the government to influence the development of the port or the port authority are minimal. A risk might be that the community loses influence over the port and its activities, since foreign entities gain the ownership in the port. (Brooks & Cullinane, 2007, p. 409) These entities might have different interests than the community. The private port model entails the risk that the other functions, mostly non-economic functions, will be neglected. Safety policies and the control over externalities are dependent on the ability of the private parties to auto regulate themselves. As I pointed out previously, a port forms a connection for the society with others, and thus opens up markets. To risk concentration of powers over a port with one entity thus risks that the community is dictated with whom to trade and connect. There might be situations in which this model might be feasible, for instance in case of a mining



village, fully concentrated at the exploitation of the mine, but generally speaking the private model would be unacceptable for the community surrounding the port. An element of meaningful public influence in the port is essential for the continuity of the society served by the port.

Though the approach of the World Bank might be 'oversimplified, cannot be validated and do not reflect the hodgepodge of "infinite variety" implemented in today's highly competitive port environment', as Brooks and Cullinane (2007, p. 434) put it, still it is necessary to categorise port authorities into government models. The legislator in a country might base the construction of a port authority on the basis of one of these models. That there are differences amongst the ports in these models, or that there is a significant part of all port authorities in just one of these categories, is less relevant for the legislator that makes a decision for its own authority model. Though, crossing categories of port authority models might result in a highly dubious entity, which has conflicting interests, unclear responsibilities and cannot connect with the international trading routes.

More research has been done at the categorisation of port governance models. Baird (2000, p. 180) has developed a Port Privatisation Matrix, with which he tries to „take account of fundamental institutional changes in port ownership and organisation resulting from contemporary approaches to privatisation". He distinguishes three functions of port authorities: the landowner function, which concerns about the port infrastructural development, the port utility function, which deals with the services concerning the transfer of goods, and the regulatory function, involving the enforcement of the law and coordination of activities in the port. These functions, or parts thereof, can be allocated to either public or private parties. However, this matrix is essentially focussed at the privatisation of port governance, and thus mainly describes the transition of powers and obligations. It does not distinguish between the background of the parties involved, nor of the characteristics of a port. For instance, in the World Bank approach, also the level in the government (national, regional, etc.) is involved. This model seems to be feasible in the period of transition. But it seems not to be feasible for long-term categorisation of port governance structures, since it does not differentiate to the focus and strategy of port authorities or the controlling governments.

The World Bank approach was also criticised by Bichou and Gray (2005, pp. 81-82). Where the World Bank distinguished between three types of superstructures, in practice this separation is not that strict according to the authors. More over, the World Bank's terminology does not account for the other services a port may provide. But in modelling the characteristics of a port authority, I presume that the activities that do not belong to the core of a ports its activities will not be considered in any model. Further, Bichou and Gray argue that the model does not account for the extent of the functions, which though is highly debated. This argument I think is valid, but will only be relevant in certain types of research After this critique they give, it is surprising that Bichou and Gray themselves offer a categorisation of activities that is not that distinctive from the models that already exist (e.g. Baird,

2000, World Bank 2007). They differentiate the organisational, operational, spatial and regulatory functions (Bichou & Gray, 2005, p. 83), which is only limitedly different from Baird's (2000) model. Naming differences on functions of the port authority has as a great disadvantage that one cannot give statements about the port authority as a whole or within its category, since the port authority is configured differently over their functions. In the World Bank approach, this is possible since its typology categorises the port authorities only in one type. Furthermore, also this categorisation does not account for strategic choices of the port authority. For this, I will try to account in the following chapter.

### **3. PORT ORIENTATION IN A GLOBALISING LANDSCAPE**

In the last decades, international trade was developing tremendously. Not all regions could gain from this development. Increasing competition, production and economies of scale outcast large geographical areas of the world that could not keep up with this development. The Industrialised or Industrialising regions such as Europe, Northern America, and Asia did though connect via trade routes. (Bierman, 2012) In this development, ports facilitated by increasing operational efficiency and using economies of scale to lower transport costs. But this also meant that the margins on trade diminished. To maintain such competitive advantage, that economic actors in the port profit enough, port authorities now have the important role to develop strategic relationships with other ports or regions. (Notteboom & Winkelmann, 2001) This role can be fulfilled in numerous ways, which I will try to categorise now.

#### **3.1. STRATEGIC SUBJECTS**

Notteboom and Winkelmann (2001, pp. 85-86) distinguish three type of subjects with whom a port authority may strategically wish to connect. They can connect with overseas ports, neighbouring ports and inland ports.

##### *A. Overseas ports*

The interest in the port's hinterland to trade with overseas ports may be assumed to be the core of the industry. Connectivity with overseas port can open up markets for export, or can lower transport cost to increase competition on the regional market, lowering product prices. Port actors bind themselves with the port, because the port offers new profitable possibilities overseas. (Port of Rotterdam, 2013) Furthermore, it can improve port traffic, since the two ports can coordinate the incoming and departing ships between their ports.

Connection with overseas ports can become the most important competence of port authorities in highly competitive trade areas. It inhabits the chance to access developing markets, broadens the market for regional producers and provide further integration of transport facilities.

On the other hand, ports may have a hard time making cooperation with overseas port work, since it requires knowledge of the area, systems and opportunities. The port authority needs to be very professional, since long-distance relations may require long-term diplomacy.

A port authority wishing to connect with overseas ports needs to have an active attitude, trying to connect with either local producers or the other port authority.

##### *B. Neighbouring ports*

In the region, cooperation between ports can benefit both. Inter-port competition threatens the trade volumes of all ports in the region, and efficiency becomes the key for economic promotion of the port. Cooperation can lead to increased scales and flexibility of both ports, since the surplus in demand in

one port, can be transferred to the other port. The disadvantage of cooperation with neighbouring ports is that both ports serve roughly the same hinterland, thus are competing for each others customers. It might make a long-term relationship between two port authorities impossible, if the port authorities do not become the leading ports of the region. More over, it is only beneficial in the parts where the ports transport the same cargo. If the Port of Rotterdam would cooperate with the Port of Hamburg in oil transports, this would benefit neither of them. The ports cannot contribute to the competences of another port.

Another disadvantage of cooperation (rather called 'dependency') on neighbouring ports is that it is only beneficial in short periods of demand surplus. These days, with the economic crisis constantly lowering European trade volumes, ports with a competitive advantage rather compete with weaker ports over the smaller trade volumes to try to fill the port, leaving co-operation only an option for the weakest ports in the region. In the long run, co-operation might exist in hinterland connectivity projects, but it entails the risk of conflict over the say over the projects.

### *C. Inland hubs*

Where Notteboom and Winkelmanns (2001) describe only inland ports, it might be more appropriate to call it inland hubs, since seaports have developed distribution chains via different infrastructural facilities. For example, Venlo Greenport has connected with the Port of Rotterdam by rail and road. (Notteboom & Winkelmanns, 2001, p. 85) These inland hubs do not have distinctive characteristics over inland ports, other than that they are not located at water. Moreover, inland ports can also have connections with seaports over other modes than water. In some cases, inland hubs are described as 'dry ports' (Padilha & Ng, 2012, p. 118).

Pending on the geographical circumstances in which a port is located, cooperation with inland ports might improve efficiency in the supply chain. Also, the port's land can be used more intensely for cargo operations, than for warehousing and distributional activities. Increased cooperation with inland ports can lead to more competitive advantage for both the seaport as the inland port. Furthermore, cooperation with inland facilities might be formed not only by port authorities, but may come up naturally by market tendencies. Shipping companies are already developing new service networks to increase efficiency. (Woo, Petitt, & Beresford, 2011) Though, still the port authority can have a role in realising sufficient infrastructural capacity to realise inland hubs. (Roso, Woxenius, & Lumsden, 2009, p. 344)

Though the seaport might be as effective, cheap and efficient as one can possibly imagine, the throughput and demand in the supply chain is also influenced by the prices and efficiency of later shackles in the supply chain because supply chains compete with other supply chains in delivering the goods or services as cheap and efficient as possible. (Robinson, 2002, p. 252) Relations between seaports and inland hubs thus can create increased competitive advantage of the whole supply chain, leading to a greater attractiveness of both the port and the inland hub for private parties.

In short, port authorities can create competitive advantage and increased trade volumes by connecting with overseas ports. Less beneficial might be the increased cooperation with neighbouring ports, since it does not influence the market they are serving, rather the relative position of the ports involved in the region. But this kind of cooperation is not expected to maintain in times it might be required the most, since the ports compete over the same trade volumes and thus have conflicting interests. On the other hand, developing a network of inland hubs that are well connected with the port via infrastructure might create competitive advantage for the port actors. The involvement of the port authority may lead to better coordination of the infrastructural capacity, and thus to increasing overall efficiency.

Factors influencing the denomination of the partners involved in the cooperation, are:

- [a1] The similarities in the hinterland;  
When the hinterland of both the port authority and its partner are highly comparable, the partner could be either a neighbouring port or an inland hub.
- [a2] The degree to which the services of the port authority are complementary or subsidiary to the services of the partner;  
Are the port authority and its partner involved in the same market, and are they competing with each other, than it is more likely to speak of a neighbouring port than from an inland hub. Their services are subsidiary to one another. In case of an inland hub, the services are more complementary.

The codes (e.g. [a2], [c4] and [b1]) previous to the factors will be used in the sample (Ch. 4) to refer to the factors tested on.

### **3.2. MODES OF CO-OPERATION**

Co-operation exists in more and less intense forms and roles of the participating parties. In this paragraph, I examine the possible shapes co-operation can have, thus in which modes co-operation might occur. The distinction is partially based on the modes named in Heaver et al. (2000).

Cooperation arises in several shapes and with different intensities. For this model, modes have been identified in which parties have shown their commitment to cooperate within a certain structure (see also § 4.1).

#### *I. Horizontal integration*

Ports may do a hostile takeover on other ports, such as private ports in the U.K. or New Zealand. In this way, they have fully control over this port. There are cases of small ports merging. This can have the advantage that the merging directly creates economies of scale and scope. (Heaver, Meersman, & Van de Voorde, 2001, p. 300) It is more common amongst logistical companies. For a reason, since a hostile takeover may create more disadvantages than actual advantages. The port authority has in most

cases little knowledge of the area that they have to serve. This risk might though be little in case the port authority acquires an inland port or a neighbouring port. Also, it increases the risk of investment for a port authority. The policies of the daughter ports are fully dependent on the investments of the mother port. At last, a remark must be made about the possibility to acquire other ports. Since most ports are still -partly- controlled by public entities, the full acquisition of a port is in many cases impossible. In those cases, the port authority is advised to think about the following possibility:

## *II. Joint venturing*

In several cases, port authorities have set up joint ventures with private parties, specialised in key competence elements of the regional economy. For instance, the Port of Rotterdam has set up a Joint Venture with businessmen in the mining and offshore industry to create a port near Rio de Janeiro (Brazil). (Port of Rotterdam Authority, 2012) This port authority is planning to do likewise in other countries such as Rumania and China. (Port of Rotterdam, 2013, p. 43) With these joint ventures, the port authority can gain major influence on the development and orientation of overseas ports. These developments can lower product and commodity prices, since the connection is more secure, and more oriented at the port authority. It requires though large investments to set up new ports via a joint venture, and thus brings along a large risk of capital. In case of overseas networking via joint ventures, the associated parties can bring in knowledge and information, which might be essential for the success of the project. Since it opens up markets and possibilities for the associated parties, it might form a win-win situation.

The attractiveness of this technique also depends from the role in the motherport of the port authority. In case it has a large role in the processes and is making profit, the knowledge and capital it can contribute to joint ventures is larger than when it has a more latent role, for instance when it only performs regulatory functions.

Networking via joint ventures might be profitable in case of a start-up port, such as the Puerto Central in Brazil (Port of Rotterdam Authority, 2012), or for a port that wants to bring the technology, operator facilities and infrastructure to a higher level. In case of the latter, one might think of ports in developing regions with highly increasing trade volumes. These port authorities require large investments, in which the joining port authority has to participate. In some joint ventures, port authorities will bring in knowledge to compensate for a lack of contribution in capital, for which the associates have to account. The mode of joint venturing is still more feasible for large, developed and advanced ports, than for others.

Joint venturing can also be the right instrument in case the port authority is looking not to expand the network, but also when it has to create a stronger position against powerful alliances of port actors. Than, a joint venture of port authorities can set up schemes for the distribution of concessions over the cooperating ports, to withhold these ports to compete with each other over the port actors. For instance, in cases without a joint venture, a container terminal company can make neighbouring ports

compete with each other over the lowest price for concessions. In case of a joint venture, neighbouring ports can set prices which the terminal company has to accept and thus can withstand the increasing power of certain logistical parties over port pricing and policies (Heaver, Meersman, & Van de Voorde, 2001, pp. 296-298) and (Hoshino, 2010, p. 44).

### *III. Partaking of the port authority*

A port authority can decide to partake in another port authority. Then, it can profit from the knowledge of the other port, but does not have enough shares to influence the ports' policy directly. They are dependent on the other parties in the port authority to get the majority for their plans. It might not be the most ground-breaking networking strategy of a port authority to participate in such ways, but we can identify some motives to let this strategy prevail over others. In case we deal with two existing port authorities of about the same scale, which is not that one of a large, developed port, the lack of excess capital in both ports might be a reason for one port authority to develop itself, invested by the emission of shares (in the development project). However there might be a risk of capital, the participating port authority could be willing to partake, in the foresight of capital rents. The developing port authority than can finance the project, without donating shares to parties with other intentions than that of a port authority.

It is unlikely that a port authority will partake as a minority party in new developments, since it has other interests than the private parties. Nor is it likely that the port authority partakes in a neighbouring port, that is competing with it. Though, it is more likely with inland hubs that focus only on one of the many goods treated in the port, since the port authority wants to be involved in the development of this centre, but in most cases will not have the ambition to take a leading role in this sole supply chain, as it would in case of a joint venture or a hostile takeover.

### *IV. Co-operation agreements*

Port authorities often make co-operation agreements with neighbouring inland hubs. In some cases, even neighbouring port authorities agree to cooperate on issues such as port marketing and 'structural co-ordination'. (Heaver, Meersman, & Van de Voorde, 2001, p. 300) This kind of co-operation is not a crucial element of port authority's functions.

Co-operation agreements form a good mode of co-operation, excluding the risk of capital named in the options above. Then, participating port authorities can create trade-facilitating schemes between their ports, or regulate certain aspects of the supply chains running through their ports. In the case named in Heaver et al. (2001, p. 300), port authorities share an interest of the region, which motivated the normally rivalling parties to co-operate. On the other hand, this co-operation cannot be seen as very extensive. The co-operation does not bind the port authorities to a certain policy, not even to a marketing policy. Though ports maintain their autonomy, it does show less commitment than partaking in a joint venture or another form of participation. Both partners of the cooperation

agreement stay autonomous from one another. Therefore, this mode of cooperation is distinctive from the other type of cooperation, in which one party or both parties take part in the other or one another. As Hoshino (2010) mentions, for smaller neighbouring port authorities, co-operation might form an advantage over private players, if the competition in the region is intense. If the co-operation is aimed at the establishment of a common strategy, it can be of meaningful influence over other actors in the region. But if each port still sets its own strategy, the co-operation will not last in times it is put under pressure the most, which are times of severe competition. Thus, the stability resulting from these forms of co-operation will be lower than in case of joint venturing or establishing an overall port authority.

Co-operation agreements can also focus on the improvement of the efficiency of two ports, in between which one or more supply chains are laid. The increase in efficiency can stimulate the prices to fall, and the trade volumes to increase. It also can be a sign of security of the line: both port authorities can prioritise the connection through cooperation.

In short, the size of the port authority and the functions it has to execute, are of major influence to the instruments the authority chooses for internationalisation. Some forms of co-operation, such as horizontal integration, are only limitedly applicable or bear a high risk of capital. More intense forms of co-operation require more knowledge of the circumstances the partner port is operating in, mainly if the port authority wants to have a say in the policy of this partner port.

In case of fierce competition in the region, co-operation of smaller neighbouring ports seems to be crucial to withstand the market forces.

In every case, the mode in which a port authority chooses to co-operate, must fit the functions both port authorities perform in their region to be of any value. In case of co-operation with other port authorities, the functions must be either complementary or similar. This accounts also for if a port authority participates in another authority for other reasons than returns on its investment. Co-operation with a port authority with other functions or a different orientation might result in ineffectiveness of the relation or conflict.

When a port authority co-operates in joint ventures with private parties, it might be hardship to pronounce the differences in orientation between private parties, which have an economic interest, and the port authority, which is also concerned with non-economic values and goals. It can damage the functioning of a port authority when it co-operates in equality with private partners, e.g. that its impartiality is harmed or that the rule of the port authority is not legitimate any more.

Factors that can influence the denomination of a certain type of cooperation, are:

- [b1] The extent to which an exchange or acquisition of shares has taken place;  
In case the port authority has exchanged shares with another port authority, they acquire the right to influence the policies of the other authority, therefore securing the commitment to the cooperation. The first three types of cooperation, which can be summarised as institutional



acquisition, require the exchange of shares or capital. In case of the latter form, capital might be involved, but this does not lead to the ability to influence the other party.

- [b2] The nature of the cooperation;

Port authorities might have a more prudent attitude towards the other party. The overall attitude of the port authority can influence the denomination of a single type of cooperation, since it shows the intention the port authority can have.

### **3.3. LEVELS OF ASSERTIVENESS OF PORT AUTHORITIES**

Though the role a port authority takes might not actually be formulated by the port itself, it can appear from the empirical evidence that the port authority chooses a certain profile in the development of its network. These profiles I try to define in the following paragraph.

#### *1) Assertive port authorities*

In the case the port authority is actively looking for possibilities to connect with other ports, the port authority has a more diplomatic function: it tries to benefit the region and the port actors it serves, by representing the full complex of the port. To create gains in efficiency or profit for port actors, hinterland or consumers, ports can involve in partnerships such as joint ventures, or elaborate co-operation agreements. For assertive ports, it is not required to have large amounts of capital at their disposal, but it would be easier to do so. In case of a smaller, developing or underdeveloped port, the port authority has less possibilities to join in meaningful partnerships, but can still combine co-operation agreements and associations in other ports. These port authorities can fight the mature market by co-operating with other small ports in the region or can even form a regional port authority, that focuses on the prosperity of the region. (Hoshino, 2010, pp. 45-46) Most importantly, it creates opportunities for the regional market to connect with other markets and exploit their economical development. On the other hand, the regional market will profit from the increased competition, lowering the product and commodity prices.

For a port authority to dissolve into a beneficial joint venture or a regional authority, the urge for co-operation must be severe, since a port authority will not hand over its control easily. On one hand, this is beneficial for the parties involved in the port, since their interests must be protected, but it can also lead to a lower competitive advantage than could have been achieved if the port authority would have been more rational.

The port's policy is aimed at stimulating trade volumes and lowering of transport prices. With its policies, the port tries to embed itself in the logistical chains, and focuses on the efficiency of the overall supply chain. (Robinson, 2002, p. 252) But where Robinson's focus is at competition with neighbouring ports, in the case of a port authority's networking function the overall efficiency and possibilities of the supply chain count. Therefore, it might come handy to associate itself with inland hubs and overseas ports rather than be distracted by the regional competition.

Distinctive from the facilitating port authority, an assertive port authority is looking for opportunities to expand and co-operate on own initiative, trying to attract private parties to the port. In this sense, the port authority develops an autonomous strategy of internationalisation. The strategy can be influenced by the private partners, but concerns the development of the port authority itself or the port as a whole.

### *2) Facilitating port authorities*

The facilitating port authority aims at assisting private parties in their port by offering diplomatic connections with other port. The diplomatic functions are an extra service the port authority provides. In these diplomatic relations the port authority tries to bind port authorities of overseas, neighbouring ports or inland hubs in projects that benefits the private player that requires it, or benefits the overall value of the port. In case of a landlord or tool port, such diplomatic services can provide a meaningful contribution to the activities of the private parties. It is not in the range of possibilities of private parties in a landlord port or tool port to implement full-scale strategic plans and connections with other parties, since they are dependent on the infrastructure surrounding them. But a facilitating port authority will not develop an overall autonomous strategy of internationalisation of the port, which is the case in an assertive port authority.

It is a quite recent development that port authorities take this position in the marketplace. Their position, in which they have to execute both governmental and market-oriented functions, can influence the development of a port, but also can pose a threat to the impartiality of the port authority. (Heaver, Meersman, & Van de Voorde, 2001, p. 300) On one hand, the port authority tries to connect and bind with private players and other port authorities, thus creating a specific loyalty to these players. It is questionable how far a port authority can be influenced by this relation, not to be influenced in the correct and impartial exercise of its powers and functions.

### *3) Latent port authorities*

In case of latent port authorities, port players have to form and execute an internationalisation strategy themselves. This can be influenced by the circumstance that port players such as liner shippers are already horizontally and vertically integrated, and have developed internationalisation strategies within their own alliances or groups (Heaver, Meersman, & Van de Voorde, 2001, p. 294).

In highly privatised ports, the port authority is expected to have less functions in the system, thus to be more latent. The port authority's functions are in this case of little influence over the competitive advantage of the supply chains, nor over the wealth of the region it serves. The private players are required to maintain connectivity with the international market. Where in more assertive port authorities the authority has also a coordinating role of the activities and investments in the port, this function is not any more with the port authority in a highly privatised port. To prevent overinvestments and chaos in the port, private parties have to take up a more assertive role themselves.

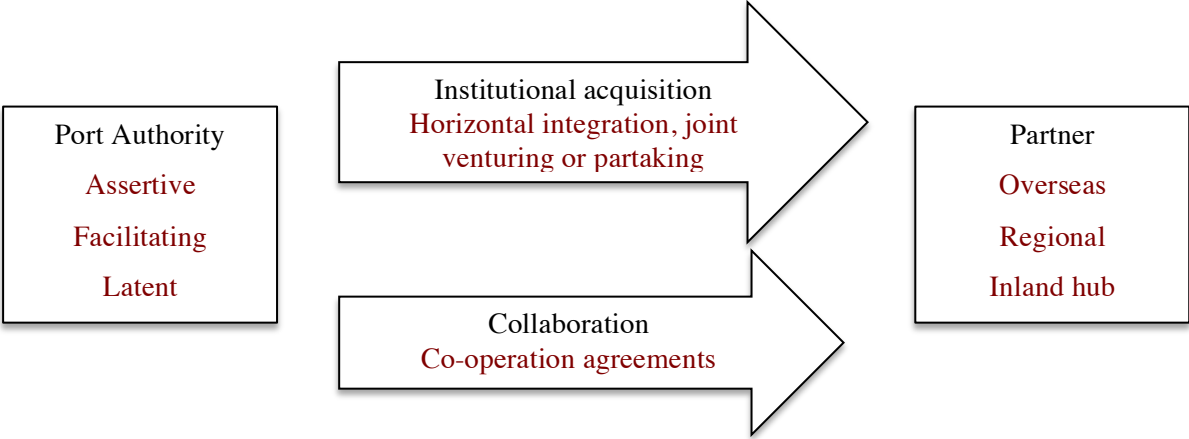
A latent port authority is also to be expected in ports that do not serve for economical purposes, but for instance for exploitative purposes of the hinterland, or military purposes.

In short, port authorities can become more assertive when more functions are allocated to them. When port authorities are allowed to coordinate investments or do investments themselves, an assertive attitude can provide competitive advantage for the port as a whole. The port authority can either act 'on request' or with an autonomous strategy. In the latter case, the port's competitive advantage as a whole can be the goal to strive for, in the previous case the competitive advantage of one of the market players. Mainly than, the port authority should guard its impartiality and the accurate performance of non-economic functions, such as environmental and safety policies.

Some factors influencing the level of assertiveness of a port authority, though regarded from case to case, can be:

- [c1] The involvement of the port authority in the economic activities in the port;  
The involvement of the port in the economic activities can create the need to seek for new demand. Is the port to refrain from economic activities, than there is more ground to assume that the port authority has a latent role.
- [c2] The influence of private parties on the policy of the port authority;  
In the interest of private parties, the port can execute an internationalisation strategy suiting the needs of the private parties. In that case, the port authority is expected to react on the demands of the private parties, thus be more facilitating. Is the policy of the port authority formed more autonomously, than a latent or assertive port can be expected.
- [c3] The interdependency of private partners in the port;  
In case there are many or very diverse private parties in the port, the need for a collective representation might exist. If this task is assigned to the port authority, a more facilitating role can be expected. This assumes though a great deal of influence of private parties on the performances of the port authority, which will only be the case in more privatised ports.
- [c4] The ability of the port to compete with neighbouring ports;  
The need for external representation and development might rise from the need to compete with neighbouring ports. A port that aims to develop itself, needs to be more assertive.

Thus, the model defined above can be summarised in the following diagram:

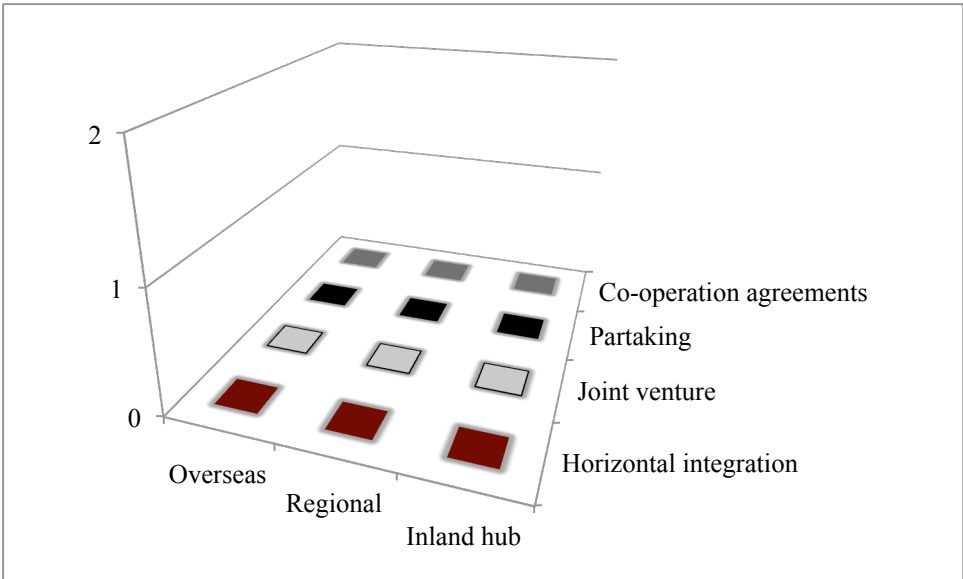


# 4. MODEL TESTING ON A SELECTION OF PORTS

## 4.1. SELECTING PORTS: CONSIDERATIONS

For testing the model developed in Chapter 2, a selection of ports has been made. This selection is based mainly on their geographic location and the market share of the port in the region. Of nearly each continent (except Australia and Antarctica), one of the major ports on the continents has been selected. The port of Durban has been selected on its relative scale, and the availability of information on this port. The port of Rotterdam has been selected because of its progressive policy on internationalisation, illustrating the many facets of the model. More over, it is the largest port of the European continent. The port of Hong Kong has been selected, not primarily on the basis of its scale but more on the relative trustworthiness of the provided information. Other, perhaps larger ports, might have been influenced more severely by the political structure of the state. This was also the reason not to select the port of Singapore. The port of Long Beach has been selected on the basis of its scale in Northern America. The Port of Sao Paulo is the largest port in Latin America and thus has been selected.

## 4.2. PORT OF DURBAN



Graph 1: Level of assertiveness of the Port of Durban (2= assertive, 1= facilitating, 0= latent).

The South African government has installed a national port authority, taking care of both port infrastructure and services. It is therefore a service port as defined by the World Bank (§ 0). Though the government does not involve directly in the execution of services in the port, it has installed a state-owned entity, the Transnet National Ports Authority, to control and manage the eight seaports in the country, thus creating a unique structure in which the company acts as both the port authority as the cargo handler [c1]. (Notteboom T. , 2011, p. 52) Within the state-owned Transnet company, a special branch was set up in 2000 for executing operations in port terminals; Transnet Port Terminals.

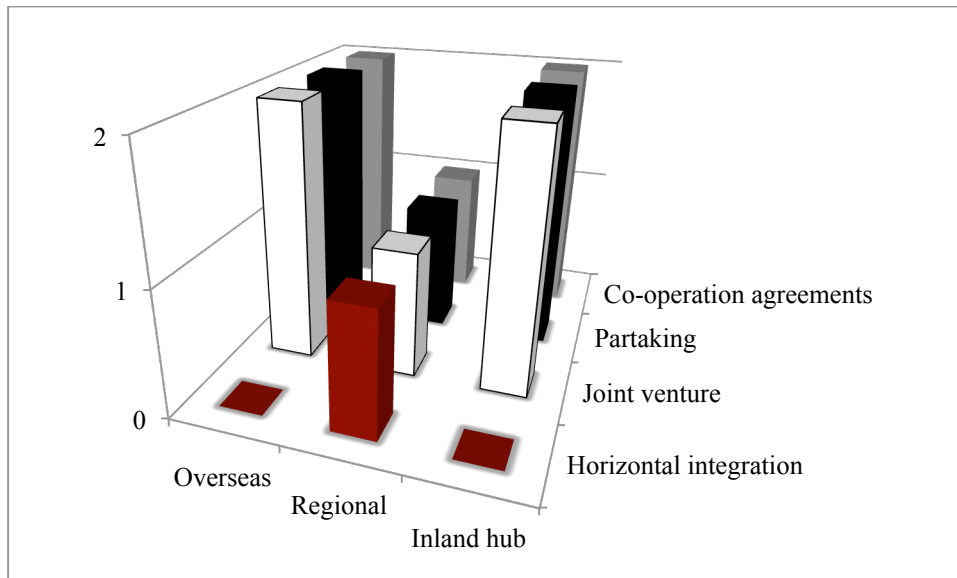
(Department of Public Enterprises) Privatisation of the Transnet National Port Authority is not in the strategic plan of the government. (Notteboom T. , 2011, p. 54) Instead, the government has set up plans to procure government involvement and to coordinate governmental activities over several departments. (Department of Public Enterprises, 2012, pp. 4-5)

Transnet, the overall public entity delivering transport via rail, pipeline or ports, has set a goal to take more „proactive action at all places of business" (Transnet Limited, 2010, p. 38). It signals that the entity will become a more assertive port authority. She is also focussed on a better integration of the regional freight systems, thus seemingly trying to smooth connectivity with inland hubs. Since Transnet already controls the transport facilities in South Africa (except from road transportation and air transport- of which the latter is controlled by South African Airways), one cannot speak of cooperation with these hubs, but rather of a more business-focussed management of the logistical chain [c1].

The Port of Durban has no known specific international strategy, but seems to focus on the internal efficiency of operations primarily.

It seems surprising that Transnet does not develop strategies to locate its services in the international trade lines. On one hand, it cannot seem fit since the Transnet services are not efficient enough to perform agreements in the international market. But though they aim at a more active position, it seems to be very latent at the moment. If Transnet would develop a more facilitating international strategy, it could help the local market of South Africa to gain competitive advantage in the world. One that she would dreary need, since the relatively high labour costs can make liner shippers choose for neighbouring port locations. (Notteboom T. , 2011, p. 54) On the other hand, it is unlikely that Transnet will focus on the development of the port of Durban with an internationalisation strategy since she tries to develop the port of Ngqura as a main container hub. (Notteboom T. , 2011, p. 53) The ports of Transnet are concerned with the same hinterland. The strategic choice of Transnet to develop Ngqura excludes the possibility for the port of Durban to exploit itself since the development of one port will hurt the other [c4].

### 4.3. PORT OF ROTTERDAM



Graph 2: Level of assertiveness of the Port of Rotterdam (2= assertive, 1= facilitating, 0= latent).

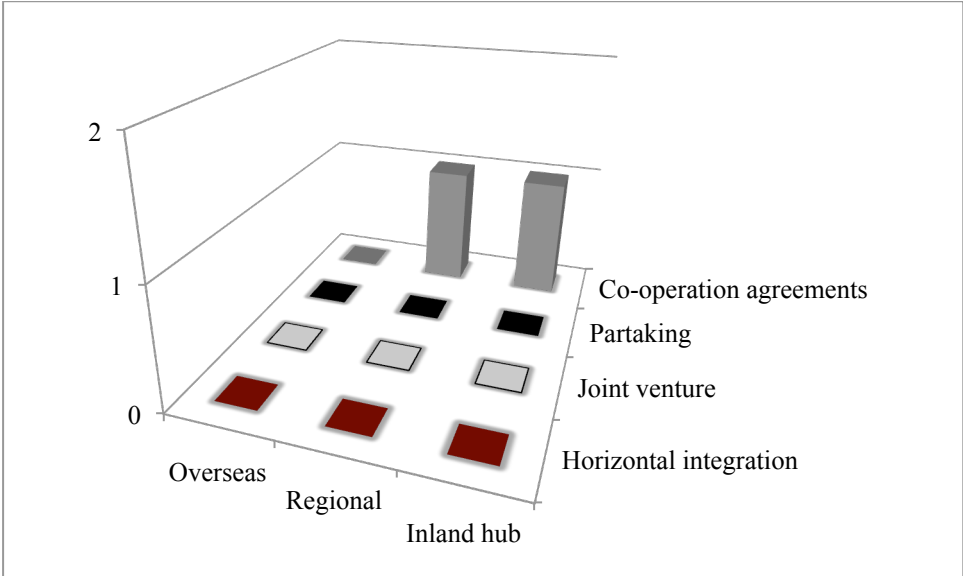
The highly developed Port of Rotterdam has outsourced operations in the port to private parties. It sells concessions to private parties, who are willing to operate in the port. Sometimes, the port authority is involved via a joint venture in its own geographical port. (MultiCore BV) The port authority's international strategy is characterised by an active role towards the development of new ports and partnerships. In Brazil, the port authority is developing a new port in a joint venture with private parties who are involved in the mining industry. (Port of Rotterdam Authority, 2012) Moreover, the Port of Rotterdam is involved in a joint venture in the Port of Sohar, Oman. (Port of Rotterdam, 2013, p. 42) This is a deep-sea port, developed by the government of Oman and the Port of Rotterdam. (Port of Sohar) The port authority has thus a very assertive attitude in developing relations with overseas ports - or even create them themselves [b1].

Also with inland hubs, the port authority tries to connect. It has a partaking position in Keyrail, the operator of the Betuweroute, a railway from Rotterdam to its hinterland. Moreover, the port authority exploits a pipeline between Rotterdam and Antwerp in a joint venture: RC2. (Port of Rotterdam) Therefore, it has significant influence over several parts of the supply chain. The port authority therefore can offer a competitive supply chain to the hinterland of Europe. Notwithstanding these modes of cooperation, the port authority could expand capacity and lower transportation costs by cooperating with inland hubs in their supply chains. Currently, the private operator of container terminals in the Port of Rotterdam, ECT, already exploits inland terminals (European Container Terminals), but a partnership with the Port of Rotterdam could create more efficient infrastructural connectivity with these hubs. Since most of the European ports are focussed on the transportation of containers, the competition will be most fierce in this logistical mode [c4]. For the port authority, though, this might involve an increased capital risk. Furthermore, it seems that the internationalisation

strategy of the Port of Rotterdam now is aimed at connectivity with new and developing markets, trying to create trade flows of commodities to their port [c1 and b2].

Graph 2, which summarises all of the above, shows quite an consistent level of assertiveness, spread out over all types of cooperation [b2]. This might be due to the different modes and types of transport the port of Rotterdam has to facilitate. The more facilitating approach of the port authority in the region might be explained because of EU competition law, making it impossible for the public entity to be capitally involved in the investments.

**4.4. PORT OF HONG KONG**



Graph 3: Level of assertiveness of the Port of Hong Kong (2= assertive, 1= facilitating, 0= latent).

In the South-Asian continent, the port of Hong Kong has a major role in the region. The port authority has a minor role in the exploitation of the port. As a part of the Marine Devision of the Hong Kong government, the port authority mainly considers safety and environmental protocols [c1]. (Marine Department, Hong Kong Special Administrative Region, 2012) Private partners are responsible for the exploitation of the port operations. The port of Hong Kong faces fierce inter-port competition in the region, for instance with the port of Shenzhen [c4].

The way the authorities in Hong Kong deal with the relatively high terminal handling charges of the port, indicates a latent role of the port authority. At the beginning of this millennium the rising terminal handling charges, caused by higher trucker costs, became a threat to the competitive advantage of the port of Hong Kong. Though this became an issue on the agenda of the government, this debate did not change the policy of the port of Hong Kong. (Loughlin & Pannell, 2010, p. 55) It was the market who had to solve this problem [c3]. On the other hand, due to the public structure of the port authority, the authority is involved in the Memorandum of Understanding on Port State Control in the Asia-Pacific Region. This Memorandum ensures safe transhipments in the Asia-Pacific

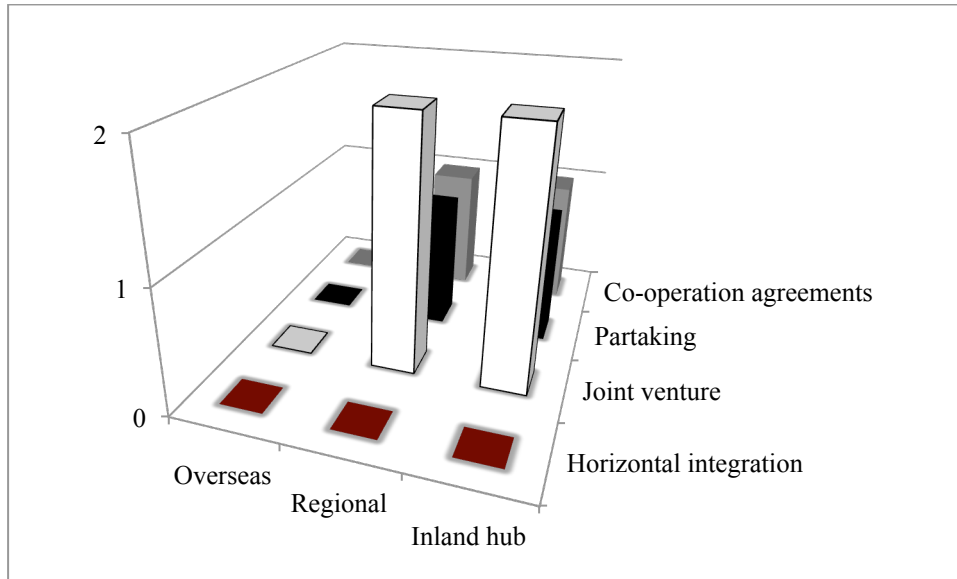


coast, thus showing the port authority's regional involvement with other port authorities. (McKinnon, 2011, p. 8)

If the port authority would have considered cooperation with the port of Shenzhen, which is practically next to the port of Hong Kong, by means of setting prices, coordinating traffic or taking over trucking companies in the port of Shenzhen, the port authority would be deemed to have a more facilitating attitude, therefore generating competitive advantage for the port since port clients (shippers, container terminals, etc.) would either pay lower terminal handling prices or would have less fierce competition from the neighbouring port [b2, a2 and a1]. Would the port authority of Hong Kong have considered cooperation with e.g. European or American ports, than the coordination of trade routes and securing trade flows would have lowered the risk of market fluctuations, making investments in the port more reliable and possibly resulting in lower cargo handling costs. Diplomacy with other ports may smooth the trade connection, and create loyalty of one port to another, making it harder for the port clients to change their choice of port [c1 and c3]. A port of Shenzhen may than have competitive advantage over the port of Hong Kong, it would be less profitable to exploit this advantage because port clients are more loyal to their berths. Would the port of Hong Kong have developed an interregional or international network of ports, thus trying to attract port operators with lower cargo handling costs, this port authority would be deemed assertive. It might be a risky position to take, since private parties might choose other ports for transshipment. (Chou, 2009)

In 2003, the Closer Economic Partnership Agreement (CEPA) between China and Hong Kong was signed, creating the obligation for both parties to (partially) eliminate trade barriers and promoting trade. (McKinnon, 2011, p. 9) With this agreement, the government of Hong Kong has secured her competitive position and enabled private parties to expand business also in mainland China without leaving the port of Hong Kong [c4]. This agreement [b1] contributes significantly to the international position of the port of Hong Kong, therefore creating new possibilities for development in the region. Though, in the light of their organisational structure and mission statement, a latent position is quite logical, the role of the port authority in executing the Memorandum and CEPA affirms the more facilitating role of the port authority. Since these agreements are not based partially on the basis of the authority's assertive actions, the port authority cannot be deemed assertive. But with the creation of investment and development possibilities for the private parties via CEPA, her facilitating role is assured [c1]. The activities of the port authority in this perspective indicate a focus on the regional competition, where overseas diplomacy might create a more secure long-run position for the port. The latter is already preceded by the Hong Kong government that signs trade agreements with other nations (The Journal of Commerce, 2013).

#### 4.5. PORT OF LONG BEACH



Graph 4: Level of assertiveness of the Port of Long Beach (2= assertive, 1= facilitating, 0= latent)

The Port Authority of Long Beach was developed by the city of Long Beach. (KPMG, 2010, p. 14) It is therefore a public entity, formed by the regional government. Because of the involvement of private partners in the performance in the port, and the revenue-focus of the port authority, this port authority can be deemed a landlord port [c1]. Private partners lease facilities from the port authority to perform port operations. (KPMG, 2010, p. 41) The Long Beach port is one of the largest in the region, with good rail connectivity to the hinterland. The Long Beach port authority has got contact with partners in the transportation industry from container shipping to railway transporters to discuss trade flows and make trade projections [c1]. (Port of Long Beach, 2009) This can be considered a basic mode of co-operation.

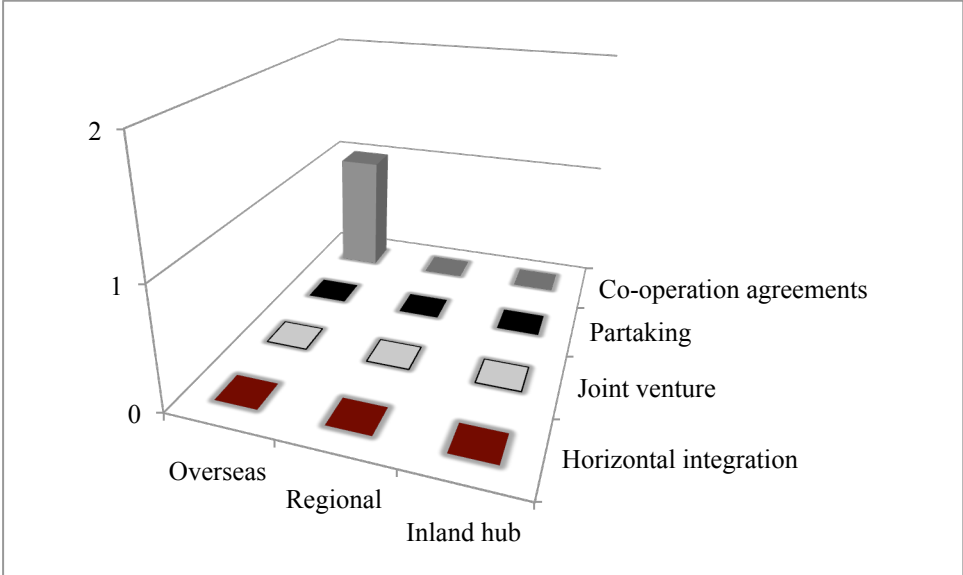
The port authority though also has formed a joint venture with the port of Los Angeles to construct an intermodal container transfer facility in which containers can be transferred to trucks or trains. This facility is leased to a private partner, who has the responsibility to operate it. (KPMG, 2010, pp. 44-45). Thus, the port authority of Long Beach has entered a long-term relationship with the port authority of Los Angeles, a regional competitor of this port, thus facilitating the needs of inland transporters by creating an inland hub, and entering cooperation with a regional party. The port authority of Long Beach seems to have a facilitating attitude [c4, b1 and a2]. This attitude is required to be able to withstand the significant competition in the North-American region. (Lytle & Joumblat, 2012, p. 30) The port authority has taken further steps to withstand local competition. In 1989, the port authority formed an alliance with other port authorities to construct a rail network amongst the ports at the West coast of North-America. The operation of this line is performed by private partners (Lytle & Joumblat, 2012, p. 49). In this sense, the port authority uses its opportunity to form a multimodal hub to cooperate with other major ports in the region, which spreads the risk of capital and binds these

authorities to the prosperity of the port of Long Beach therefore acting quite assertively [a2, a1, c4 and b1].

No evidence has been found that the port of Long Beach has structured relationships with other ports outside the range of the west side of Northern America. The role of the port authority in this regard is latent. It does not mean that she has no contact with other ports at all, only that the contact with these port is not of that much importance, that a structured commitment is made to maintain the contact [a1 and a2].

Graph 4 shows quite a facilitating port authority, with main interest in developing inland hubs for its customers. These hubs are than exploited by private partners. In the connection with overseas partners, the port authority is latent.

**4.6. PORT OF SÃO PAULO**



Graph 5: Level of assertiveness of the Port of São Paulo (2= assertive, 1= facilitating, 0= latent)

The port of São Paulo in Brazil is one of the major ports on the Latin-American continent. With twenty-seven dry ports in this state of Brazil, São Paulo is the largest container port in Brazil. (Padilha & Ng, 2012) The port of Santos, in the state of São Paulo, forms the link with the international market for the region.

Since the eighties of the last millennium, the governmental structure of Brazilian ports changed from dominantly public to a more private port model, in which monopolies were broken and private involvement in port operations has become more common. Also hinterland transportation facilities became more privatised, though controlled by the public authorities via concession agreements.

Since 2009, the port of Santos has organised an annual fair where ports and shippers can meet and sign cooperation agreements. (Port de Barcelona, 2012, p. 41) This can be regarded as the facilitation of cooperation in the region and there beyond. Though, due to the scale of the Port of Santos, the port does not face much competition of other ports in the region (Ferreira da Silva & Rocha, 2012, p. 218)

and thus will be expected to aim more for the development of a logistical chain with the hinterland transporters or other regions [c4].

According to Padilha and Ng (2012, pp. 110, 115), infrastructure for hinterland transportation is underdeveloped in Brazil. Therefore, a larger spread in dry ports can be seen and the logistical system in Brazil lacks inland hubs. With regard to the Port of São Paulo, only dry ports in and very close to the city of São Paulo have been found (Integrating Logistics Centre Networks in the Baltic Sea Region, 2007, pp. 45-46). The liberalisation of rail transportation and the recent improvements in multimodal infrastructure might create a profitable situation for more developed inland hubs. The conclusion of Padilha and Ng (2012) is though refuted by Brazil's national infrastructural boards that argue that the port connectivity of the Port of São Paulo is 'of good standards'. (Ferreira da Silva & Rocha, 2012, p. 213) This is supported by Aversa et al. (2005, p. 17). Would this be true, than the erection of inland hubs should be expected. The lack of capacity in the Port of São Paulo can cause problems for the development of the port, leading to even higher transit costs. Such a development can damage the evolution of the regional economy. Therefore, swift transfer to inland hubs can cause prices to drop and prevent further congestion of the port [c1]. Aversa et al. (2005, p. 17) even name the port of Santos as a possible container hub for the entire region of the east coast of South America. Connectivity with inland hubs is essential in maintaining such position in the light of the flexible, or 'footlose' as Aversa et al. call it, nature of the containerised transport. It is questionable to which degree the port authority is stimulated by the legal framework to develop such logistical schemes [c2]. (Padilha & Ng, 2012, pp. 111-116)

With regard to overseas partnerships, the port of Santos has collaborated with the port of Barcelona to share experiences on projects and to coordinate transport between the two ports. (NoticiasFinancieras, 2005) Such can be defined as a cooperative agreement with an overseas port in line with the model. The port of São Paulo seems have taken a latent position in the past. With the agreement with the Port of Barcelona and the possibilities for creating a hub on the continent, the port authority has the possibility to shed off this image and build on a more facilitating strategy [a1 and a2]. The modes of cooperation with overseas partners are still quite prudent [b2]. The development of Brazil might require a more involved and aggressive approach to facilitate increasing imports and export. Graph 5 draws an image of a latent port authority. Perhaps it still reflects the past of the port authority, and it did not yet have the chance to show its ambition in the internationalisation of the port. Though, the contact with the port of Barcelona might form a glimpse of prosperity in this field that might have a snowball effect on the other modes and subjects of cooperation.

## **5. DISCUSSION**

### **5.1. APPLICABILITY OF THE MODEL**

The internationalisation model formulated in this paper is considered to be a rough categorisation of the port authority's roles and their methods. Other modes of cooperation might exist, or not be named that specifically in this model. Some ports already name the attendance of fairs in their annual financial statements. (Port de Barcelona, 2012) Though this is a very early stage of cooperation with other port authorities, it has to little body to be considered meaningful for the model. Generally, for this model the mode of cooperation was considered relevant if the mode of cooperation was a) structured in some shape (e.g. specifically named in the financial statement, the establishment of a platform or body) and b) some commitment to the other party was made (e.g. signing a contract, investing capital, etc.). In the appreciation whether an interaction is structured or not, all circumstances of the case are relevant, such as, but not limited to, the intensions of the initiating party and the goals for the attending party. The attendance of a fair, for example, is thus distinguished from this model on the ground that no commitment has been made. Nevertheless the fair might be structured as an annual event, only for the organising party the model might be applicable. This relatively strict interpretation of cooperation might result in a more narrowed view on the port authority's international strategy. One can imagine that a port authority performs function internationally more under the radar, not to alert the competition. Also, this model does not distinct for the historical perspectives: the tradition of the region might influence the categorisation of the port authority. A country such as The Netherlands is involved in international trade for centuries, where a country like China has maintained a more internally focussed strategy for ages. The structure of the port authority, as defined by the World Bank, can influence the attitude of the port authority for a great deal, though it perhaps has a more assertive role in the functions it has been given. The applicability of the model is enhanced by the indicative factors given at the end of each paragraph. With these factors, an attempt has been made to name the more decisive factors and to give a more practical interpretation.

### **5.2. THE TERM 'INTERNATIONALISATION'**

Though in this paper, the term 'internationalisation' is used, this might not be sufficient to describe the applicability of the given model. Modes of cooperation between port authorities do not necessarily have to have a cross-border component, as the term suggests. Though mostly this will be the case, also cooperation between two port authorities in the same country might be regarded with this model. Only when port authorities are not autonomous in deciding about their strategies, for instance in the case that the port authority's policy is under severe influence of the national law, applicable on both port authorities, the contact might not be considered cooperation as meant in this paper, since it is not

formed within the autonomy of the port authority, but in a corresponding body influencing both authorities, that only act in accordance with its will.

A more suitable term for the strategies to cooperate with other parties might have been 'orientation'. Though, it would be inappropriate to call port strategies only explorative. Because of the international nature of maritime trade, in this paper it is chosen to call it internationalisation strategies.

### **5.3. VALUING FACTOR COMPLIANCE**

In the regarded sample, the port authority's policies and acts are tested for the model. This is perhaps highly subjective, but can give an overall image of the port's performances in this field. In this regard, also the graphs are only a visualisation of the paragraphs outline. Mostly the valuation of the compliance of these factors is based on scientific articles or publications of the port authorities. It would though go beyond the scope of this thesis to create an objective tool for testing the compliance of the port's policy on the model's factors.

Since most of port authorities fall in the category of 'latent attitude', it might be that this category is not diversified enough to give meaningful conclusions about the position of these port authorities.

Likewise might be the case for the category 'cooperation agreements', which can perhaps be more diversified to the reach of the commitment of the port authorities.

In the case of the port authority of Hong Kong, the dilemma arose whether the acts of the government as a whole, instead of only the maritime branch could be accounted as the actions of the port authority. In this thesis, it was chosen not to, since the tasks of the government involve in a more direct way the interests of the community and not necessarily the hinterland of the port. This might be blunt to state, since these factors are intertwined. The port authority though has a more distinct responsibility for the welfare of the parties in a port, in which the community is 'only' one.

## **6. CONCLUDING REMARKS**

This paper offers a model for the categorisation of cooperation policies of port authorities, in most cases with a cross-border component. The strategies can be divided in the chosen modes of cooperation, the level of assertiveness of the port authorities in looking for subjects to cooperate with, and the different type of subjects with whom the port authority can operate. The combination of these factors result in facilitation of certain types of transport in the ports making it possible for port users to enter the port, to become more efficient, or to enter new markets.

The internationalisation strategy can become a crucial element of the competitive advantage of ports in times that intermodal transport systems grow, interdependency on commodities and goods controls our current production systems and changing market conditions force port players to build on more capacities than only efficiency.

Port models such as developed by the World Bank can assist in determining the level of assertiveness of the port authority. The fit in one of the port categories can indicate the ability of a port authority to formulate its own internationalisation policy and the influence of private parties hereon.

This model is complementary to the World Bank port models. With the categorisation to the three elements of the communication process (transmitter, mode and receiver) a logical and complete image of the internationalisation strategy of the port authority might arise. The World Bank port models indicate the scope of activities the port authority can undertake, though this scope is not conclusive. In more mixed categories of ports, the scope of activities of the port authority does not arise apparently from its structure.

One of the disadvantages of this model is that in practice most of the port authorities of the sample end up in one of the categories of the model. Though it is not required that there is an equal spread over the categories, it might indicate that the model is not that applicable for the current phase of development of the port authorities. It gives a good oversight of the possibilities for port authorities to develop this strategy, but to review the current climate the overpopulated categories require more differentiation to give meaningful conclusions for these port authorities.

A sufficiently objective measurement to weigh factor compliance is not given in this thesis, and might require more research in this topic.

The model has generally outlined the advantages and disadvantages of applying a category in practice, and outlined the consequence hereof for different types of port authorities to their structure, goals and state of development. It can therefore be a useful tool for port authority boards to set out a path of development in the international market.

## 7. REFERENCE LIST

- Aversa, R., Botter, R., Haralambides, H., & Yoshizaki, H. (2005). A Mixed Integer Programming Model on the Location of a Hub Port on the East Coast of South America. *Maritime Economics & Logistics* (7), 1-18.
- Baird, A. (2000). Port Privatisation: Objectives, Extent, Process, and the UK experience. *International Journal of Maritime Economics* (II:3), 177-194.
- Bichou, K., & Gray, R. (2005). A critical review of conventional terminology for classifying seaports. *Transportation Research* (A:39), 75-92.
- Bierman, F. (2012). Regionale Entwicklung des Welthandels. *ZBW Leibniz Informationszentrum Wirtschaft*, 139-140.
- Brooks, M., & Cullinane, K. (2007). Devolution, Port Governance and Port Performance. *Research in Transportation Economics* (17), 405-435.
- Chou, C. (2009). A Model for Analyzing the Transshipment Competition Relationship Between the Port of Hong Kong and the Port of Kaohsiung. *J. Ocean University China* (8), 377-384.
- Cullinane, K., Ji, P., & Wang, T. (2005). The relationship between privatization and DEA estimates of efficiency in the container port industry. *Journal of Economics and Business* (57), 433-462.
- Department of Public Enterprises. (2012, 01 23). Strategic Plan 2011-2014. South Africa.
- Department of Public Enterprises. (n.d.). *Transnet Port Terminals*. Retrieved May 21, 2013 from Department of Public Enterprises- Republic of South Africa:  
<http://www.dpe.gov.za/index.php?content=state&view=pg&id=9&sid=32&print=1>
- European Container Terminals. (n.d.). *Terminals*. Retrieved May 5, 2013 from ECT:  
<http://www.ect.nl/nl/content/terminals>
- Ferreira da Silva, F., & Rocha, C. (2012). A demand impact study of southern and southeastern ports in Brazil: an indication of port competition. *Maritime Economics & Logistics* (14), 204-219.
- Fink, C., Mattoo, A., & Neagu, I. (2002). Trade in International Maritime Services: how much does policy matter? *The World Bank Economic Review* (16:1), 81-108.
- Heaver, T., Meersman, H., & Van de Voorde, E. (2001). Co-operation and competition in international container transport: strategies for ports. *Maritime Policy and Management* (28:3), 293-305.
- Heaver, T., Meersman, H., Moglia, F., & Van de Voorde, E. (2000). Do mergers and alliances influence European shipping and port competition? *Maritime Policy & Management* (27:4), 363-373.
- Hilling, D. (1983). Ships, Ports and Developing Countries. *Geoforum* (14:3), 333-340.
- Hoshino, H. (2010). Competition and Collaboration among Container Ports. *The Asian Journal of Shipping and Logistics* (26:1), 31-48.
- Integrating Logistics Centre Networks in the Baltic Sea Region. (2007). *Feasibility Study on the Network Operation of Hinterland Hubs (Dry port concept) to improve and modernise ports' connections to the hinterland and to improve networking*. Aalborg: FDT.



KPMG. (2010). *The Harbor Department of the City of Long Beach: financial statements*. Irvine: KPMG LLP.

Loughlin, P., & Pannell, C. (2010). The Port of Hong Kong: Past Successes, New Realities and Emerging Challenges. *FOCUS on Geography* (53:2), 50-59.

Lytle, J., & Joumblat, S. (2012). *Comprehensive Annual Financial Report*. Irvine: KPMG.

Marine Department, Hong Kong Special Administrative Region. (2012, 12 1). *mardep.gov.hk*. Retrieved 06 15, 2013 from Marine Department: <http://www.mardep.gov.hk/en/aboutus/dept.html>

McKinnon, A. (2011). *Hong Kong and Shenzhen Ports: Challenges, Opportunities and Global Competitiveness*. Hong Kong: School of Law, City University of Hong Kong.

MultiCore BV. (n.d.). *Multicore Rotterdam*. Retrieved May 05, 2013 from Multicore: <http://www.multicorerotterdam.com/en/home/>

NoticiasFinancieras. (2005, 11 21). Brazil's Port of Santos and Spanish Port of Barcelona sign collaboration accord. *NoticiasFinancieras* , p. 1.

Notteboom, T. (2011). An application of multi-criteria analysis to the location of a container hub port in South Africa. *Maritime Policy & Management* (38:1), pp. 51-79.

Notteboom, T., & Winkelmann, W. (2001). Structural changes in logistics: how will port authorities face the challenge? *Maritime Policy and Management* (28:1), 71-89.

Nunez-Sanchez, R., & Coto-Millan, P. (2012). The impact of public reforms on the productivity of Spanish ports: A parametric distance function approach. *Transport Policy* (24), 99-108.

Padilha, F., & Ng, A. (2012). The spatial evolution of dry ports in developing economies: The Brazilian experience. *Maritime Economics & Logistics* (14), 99-121.

Port de Barcelona. (2012). *Annual Statement 2011*. Barcelona: Autoritat Portuària de Barcelona.

Port of Long Beach. (2009). *Strategic Plan 2009 update*. Long Beach: Queen Beach Printers.

Port of Rotterdam Authority. (2012, oktober 10). *Press releases and news articles*. Retrieved mei 7, 2013 from Port of Rotterdam: <http://www.portofrotterdam.com/en/News/pressreleases-news/Pages/port-rotterdam-authority-develop-brazilian-port.aspx>

Port of Rotterdam. (2013). *Jaarverslag 2012*. Rotterdam: Havenbedrijf Rotterdam.

Port of Rotterdam. (n.d.). *Pijpleidingen (Pipe lines)*. Retrieved May 21, 2013 from Port of Rotterdam: <http://www.portofrotterdam.com/nl/Business/over-de-haven/verbindingen/Pages/pijpleidingen.aspx>

Port of Sohar. (n.d.). *About the Port*. Retrieved May 05, 2013 from Port of Sohar: <http://www.portofsohar.com/about-the-port>

Robinson, R. (2002). Ports as elements in value-driven chain system: the new paradigm. *Maritime Policy and Management* (29:3), 241-255.

Roso, V., Woxenius, J., & Lumsden, K. (2009). The dry port concept: connecting container seaports with the hinterland. *Journal of Transport Geography* (17), 338-345.

- The Journal of Commerce. (2013, Februari 26). *JOC*. Retrieved July 11, 2013 from [http://www.joc.com/regulation-policy/trade-agreements/international/hong-kong-thailand-sign-trade-cooperation-agreement\\_20130226.html](http://www.joc.com/regulation-policy/trade-agreements/international/hong-kong-thailand-sign-trade-cooperation-agreement_20130226.html)
- Transnet Limited. (2010). *Annual Report*. Johannesburg: Transnet.
- Van Reeve, P. (2010). The Effect of Competition on Economic Rents in Seaports. *Journal of Transport Economics and Policy* (44:1), 79-92.
- Wilder, R., & Pender, D. (1979). Economic Behaviour of Public Ports in the United States. *Journal of Transport Economics and Policy* (13:2), 169-181.
- Woo, S., Petitt, S., & Beresford, A. (2011). Port evolution and performance in changing logistics environments. *Maritime Economics & Logistics* (13), 250-277.
- World Bank. (2007). Alternative Port Management Structures and Ownership models. In P.-P. I. Facility, *Port Reform Toolkit* (pp. 69-130). Washington: World Bank.