# Competitive global ports for regional economic development:

## The Port of Valencia

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# *Abstract*

*Face to high unemployment and GDP stagnation, competitive ports bear potential positive impacts on regional economic development over their hinterland. Ports are conceived as nodes in global supply chains basing their competitiveness in deriving location, infrastructure, connectivity and supply chain integration advantages for logistics operators. In the current global logistics scenario, port oversupply has increased competition, and global shipping companies are increasingly influential in inserting ports into international maritime routes. This qualitative case study is a pragmatic research, making use of both new institutional economics to grasp the economic behaviour of port stakeholders, and the structure of provision approach to guide an institutional analysis on how the attributes of the Port of Valencia provide global shipping companies with competitive advantages. Institutions turn to be relevant in generating advantages such as a privileged connectivity to the centre of the peninsula, an outperforming integrated electronic information interchange system among all members of the port community, or the port authority's valuable coordination, promotion and leadership of initiatives boosting logistics operators' competitiveness. Port institutions have also shaped competitive disadvantages, namely the elevated cost of stowage, towage services, some taxes or low productivity of some terminals. The analysis of these findings grounds a discussion on possible adjustments of the port institutional attributes to strengthen the competitive advantages offered to global shipping companies, thus contributing to the regional economic development of the port hinterland. The paper concludes with some challenges for the future and further research tracks.*

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# *List of acronyms*

CIPS ……Prevention, Preparedness and Consequence Management of Terrorism and other Security-related Risks programme

CGT……Confederació General de Treballadors

CSI……Container Security Initiative

CSR……Corporate Social Responsibility

EDI……Electronic Data Interchange

EIA……Environmental Impact Assessment

EMAS……Eco-Management and Audit Scheme

EU……European Union

ICS……International Control Security

ICT……Information and Communication Technologies

IMO……International Maritime Organisation

ISO 14000……International Standard Organisation 14000

ISPS……International Ships and Port Security

IGAE……Inspección General de la Administración del Estado

NIE……New Institutional Economics

PAV……Port Authority of Valencia

PCS……Port Community System

PERS……Port Environmental Review System

RIS3CV……Research and Innovation Strategy for Smart Specialisation of the Region of Valencia

TEN-T……Trans-European Network of Transports

TEU……Twenty-foot Equivalent Unit

UGT……Unió General de Treballadors

US……United States

# *List of figures, maps and tables*

# 1. Intrduction

Economic activity raises, grows, develops and declines in space. The capitalist model of our global economy drives endemically to the uneven economic development of the different territories. In the aftermath of the global financial crisis, EU regions, especially in the South, have seen their fragility increase, awakening risks such as loss of jobs, increase of poverty rate, social exclusion, deterioration of public services and out-migration. However, the effects of capitalism on the development of territories can be (imperfectly) managed so that these risks remain within socially and politically acceptable boundaries.

Since the global financial crisis transformed into an economic crisis, unemployment and the economic situation became the main perceived problems of European society. In an attempt to steer the EU towards a better future, the EU launched the EU2020 strategy for smart, sustainable and inclusive growth. In response to this socially perceived pressing problems, and within the precepts of a binding public policy strategy which privileges economic growth as the way forward, this work aims at contributing to the regional economic development of one of the most badly affected areas in Europe.

For so doing, this work turns to the sector of logistics and global ports, since this economic activity was put forward as a key strategic sector in the upcoming Research and Innovation Smart Specialisation Strategy of the Region of Valencia (RIS3CV). The strategic character of global ports is grounded in the fact that their competitiveness has been reported to be a springboard for economic revitalisation of their hinterland through scaling down the cost of accessing global importation and exportation markets for the economic network within it. The Port of Valencia offers a convenient combination of global port status within a European badly affected area, covering an economic region beyond regional administrative boundaries.

According to port studies literature, in present day globalised logistics environment ports are conceived as "nodes in global supply chains" linking geographies of production and consumption (*Robinson 2002*). The remarkable growth of maritime traffic during the last decades of international trade openness and delocalisation processes has increased the number of ports along routes, generating an oversupply at present. In their search for economies of scale, technical developments have allowed international trade vessels to become larger in size, and commercial strategies tend to restrict the number of ports of call to the benefit of vessels' transoceanic transit. In this global logistics environment, port competition for attracting international maritime traffic has become harsher. Moreover, the increasing concentration of the container shipping industry in global megacarriers and commercial alliances is enhancing the leverage of global shipping companies in the participation of ports into global maritime traffic. Competitive ports are therefore those capable of attracting global shipping companies more regularly than other ports, thus providing their hinterland with direct connectivity to global markets. This implies that competitive advantages of ports are in fact derived advantages generated for logistics operators, among which, global shipping.

Port studies literature has acknowledged the limited undertaken research under the most vanguardist port paradigm as nodes in global supply chains, and the integration of ports in these chains as a means towards increasing their competitiveness (*Panayides et al. 2009, 133*). Furthermore, Notteboom et al. pointed that even studies within this paradigm are rather descriptive, and analytical approaches remain scarce (*2013, 646*). This research endeavours to pioneer port studies under Robinson's paradigm addressed to the Port of Valencia, applying an analytical approach based on new institutional economics and the structure of provision approach.

In order to contribute to the regional economic development of the hinterland of the Port of Valencia, this research aims at both understanding how the port attributes derive competitive advantages for global shipping companies, and critically reflecting on how these competitive advantages could be further strengthened. The study is guided by two research questions a) how do the institutional attributes of the Port of Valencia provide global shipping companies with competitive advantages? And b) how could the institutional attributes of the Port of Valencia adjust to provide further competitive advantages to global shipping companies?

This paper is structured in six chapters. The second chapter after this introduction will provide the background of the research, starting with an introduction to the notions of territorial development and regional economic development. Next, societal relevance will be justified through a review on ports

positive and negative impacts in relation to regional economic development. The section will be followed by a succinct overview of the evolution of logistics environment during the last decades, and the parallel evolution of the late developments in port studies. The academic relevance will be stressed after discussing some of the theoretical underpinnings framing the research proposal. This will be followed by a critical review on the complex implications of port competitiveness, and the development of the research proposal. The third chapter will critically discuss the theoretical framework, starting by the suitability of new institutional economics school of thought for understanding market actors behaviour face to alternative perspectives, and continuing with the structure of provision approach addressing some of the vagueness of the NIE perspective and allowing the paper to sketch the institutional attributes to be observed at the Port of Valencia. This chapter will be closed by the articulation of a conceptual framework explaining the relevant concepts and their interrelations for the purpose of this research. The fourth chapter will critically reflect upon the choice for a pragmatic qualitative research design and the case study as a research method. Subsequently, the data collection procedures, the research steps followed, the problems encountered and the way they were addressed will be developed, and followed by an explanation on the information analysis process undertaken during this research. The next chapter will display the research results and data analysis, starting by a description of ports, their functions, actors and roles. This description will be enriched next with a broader overview on the recent developments globalisation has brought to the logistics and the present day port challenges. The more descriptive part will be closed with a historical and institutional featuring of the Port of Valencia. Section four will address the research questions, presenting the findings on each of the elements of the structure of provision for the Port of Valencia, and an analysis on how the institutional attributes provide with competitive advantages shaping the economic behaviour of global shipping companies. This compartimentalised analysis will be overcome through an integrated analysis of the competitive (dis)advantages of the Port of Valencia resulting from local institutions. Section five closing this chapter will build on these findings and analysis to elaborate a critical reflection on how the institutional attributes of the Port of Valencia could adjust to provide global shipping companies with further competitive advantages, attracting more international maritime traffic and therefore unleashing the positive economic impacts of ports on regional development. Finally, some critical concluding remarks will be presented, together with open suggestions for new research tracks.

# 2. Background

This chapter will provide the background of the research in five sections. The first will introduce the notions of territorial development and regional economic development. Next, a review on ports positive and negative impacts in relation to regional economic development will set the ground for the societal relevance of the research. The third section will be overview the late developments in port studies on the basis of the evolution of logistics environment during the last decades, discussing some theoretical underpinnings and stressing the academic relevance of the proposed research. This section will be followed by a critical review on the complex implications of port competitiveness, and finally the research proposal will be presented on the basis of these societal and theoretical underpinnings.

## 2.1 Contribution to territorial development from a regional economic perspective:

> *"There is a broad consensus on the notion of territorial development as a balanced integration of economic growth, employment, high degree of welfare, social equity, effective protection of heritage and environmental quality"* (Salom 2009, 100)

The notion of development can be traced back to the late 18th century and the emergence of capitalism, when it was first associated with a sustained increase on per capita income (*Pike et al. 2006*). Its meaning has never been stable. On the contrary, the influence of different currents of thought and policy doctrines along time and across territories has produced a large diversity of definitions, goals, instruments and methodologies, based on different sets of values among societies.

In Western societies, the notion of development was therefore associated to the emergence of capitalist industrial societies in the 19th century. After social rights movements in mature industrial societies, development was linked to the raise of welfare state in the early 20th century, producing a noteworthy increase in

the role of the state in providing such an outcome, namely through Keynesian economic policies exemplified in Roosevelt's New Deal in the US. The influence of modernisation theory gave rise from the 1940s to developmentalism, a heavily influential perspective to development mostly applied to what was called the "Third World", which referred to a linear path of evolutionary stages towards Western capitalist socioeconomic and political model. The evolution of Japan, Taiwan, Mexico or Brazil from traditional to industrialised societies perfectly fitted this paradigm. In the 1960s, even distribution of wealth generation opportunities received a larger attention when thinking of development, whilst the Marxist critique to the neo-colonial integration of the South into the capitalist system was put forward. At the same time, a shift of geographic attention from the state to the regional level as the most relevant scale for economic activity was taking place, further deepened along the next decades. Market restructuring inspired in neo-liberalism and monetarism shifted in the 1970s and 1980s the notion of development towards a by product of free market dynamics and market failure counterweight policy. The early 21st century has seen the irruption of an integrated set of issues linked to development including the classical economic perspective, but also encompassing social equity and environmental sustainability.

Although some understandings of development have prevailed over others, full consensus was never reached, and that is also the case today (Ibid.). Differences remain concerning values, goals, theoretical influences, instruments, actors of development or geographical scales. The neo-liberal understanding of development in Davos World Economic Forum, Chinese interventionist model, the critical debates at the World Social Forum or civil movements under the de-growth tag are examples of the existing divergences towards the notion of development. From this short review an idea can be retained. The notion of development is deeply context dependent, so that the values, theoretical inputs and political goals of a given society on a given period shape its meaning. This work is grounded on the definition of territorial development quoted at the beginning of this section, which this author considers sufficiently holistic to cover the main issues of contemporary European societies, applicable to both the local and the regional scale, and loose enough to take advantage from a diverse toolset anchored in different regional development theoretical perspectives.

In spite of providing with a valuable horizon for professional action, the enormous complexity of managing the issues covered in territorial development altogether make the concept too large and vague to orient this research. In order to reduce complexity of territorial development, the scope of this research will zoom into regional economic development, related to the goal of increasing GDP per capita and the employment rate at the regional level.

The economic focus is chosen according to the importance attributed to economic growth for steering desired change in contemporary EU societies.

Political goals reflecting mainstream values of European societies have converged in the EU 2020 strategy for smart, sustainable and inclusive growth. The document approved in March 2010 is the outcome of a European debate on values, goals and proposed actions, and it constitutes a framework from which addressing the major economic, political, environmental, social and cultural issues in the EU, directly linked to Salom's quote on territorial development. Although increasingly contested, the governance system through which this strategy was enshrined is still perceived as the most legitimate locus for defining European public interest. It guides the ensemble of policies managed from Brussels as well as the state, regional and local public action increasingly affected by EU regulation. Although the strategy uses abundant buzzwords to be further developed in cascading policies, some streamlines can be clearly set out. The EU 2020 strategy pursues driving the EU towards global competitiveness, addressing key global environmental issues and tackling poverty and social exclusion. In this vein, economic growth stands as the core driver for the development of European societies.

On the other hand, the spatial scope chosen to territorial development is linked to the "economic region" where daily relationships between economic operators is very intense. This understanding of a region is rarely coincidental with administrative regions, instead, it is determined to the specific nature of the studied phenomenon. In the discipline of port studies, these intense economic relationships are produced in the hinterland, being more intense and linked to a single port the closer economic spaces are from the gateway, and more scattered and shared when these economic spaces distance from the port. Also, the regional scale of analysis has gained theoretical momentum since the 1990s, when space was reintroduced to economic analysis as a relevant factor in new economic geography, new growth or new trade theories. More interestingly, policies have attentively turned to the regional level for boosting contemporary economic strategies, such as the mainstream regional innovation systems.

In all, given the primacy to economic growth in the European agenda for steering the evolution of our societies, and the pertinence of hinterland for linking ports to the effects on economic development, the focus of this thesis will scale down territorial development to regional economic development, defined as growth in GDP per capita and increase of the employment rate. Unfortunately, although socially relevant, easier to handle and ambitious enough for this research endeavour, this restricted understanding of development evades key questions such as the impact of growth into employment generation and its quality, the distribution of growth among the members of a society, environmental and cultural impacts of economic growth, the political conflicts that economic development might create or sharpen among citizens and organisations in a territory, as well as the different scales in which development occurs.

## 2.2 Ports: an engine for regional economic development

But, how can regional economic development be delivered? This paper turned first into existing policy priorities, and then to academic literature to choose the field of logistics, and more specifically, the role of ports. One of the specific objectives of the upcoming RIS3CV strategy was "improving the utilisation level of port infrastructure" (*Generalitat Valenciana 2013*). On the other hand, academic literature and international economic organisations have acknowledged ports as potential "springboards of the economic development of their hinterland" (*Walter 1975, Talley 1988*, in *Song et al. 2008; 73*), provided that they are competitive and work well (*Merk et al. 2013, 20*). But bringing these broad notions into tangible outputs, what are the specific port related impacts?

In 2013, the OECD published a synthesis report on a series of analyses conducted in different port-cities on the positive and negative impacts of ports (*Merk 2013*). Their findings concluded first that ports provide a key function as facilitators of trade between the port hinterland and the rest of the world. They provide the regional economic system with accessibility to global markets, increasing competitiveness of regional firms through lower import/export cost, compared to other means of transport or ports located further away. A port enables regional specialisations to be competitive worldwide, attract new industries related to maritime trade –eg. construction, ship building-, requiring imported raw materials –eg. steel factories- or expanding to global markets. This strengthens economies of scale, facilitating knowledge transfer among these industries. Overall, port activities have been correlated to positive indirect economic effects through the increase of rent across the port hinterland. However, the extent of this impact varies according to the type of traffic. Import/Export traffic generates a higher added value since it is directly linked to the regional economic network, while transshipment traffic has a lower added value for the regional economy (*Ibid.*) Together with freight transport, other activities such as fishing, ferries, cruising and recreation are accommodated in ports (*Rodrigue 2013*), although freight transport is the most narrowly related activity to economic development in global ports.

Secondly, and linked to the economic revitalisation role, ports have a positive impact on employment generation. Direct employment in the port has been rather limited or even declining due to technological development affecting port operations, transforming them into capital-intensive activities. It currently accounts for a few thousand jobs in big ports. Nevertheless, the impact on indirect employment across the hinterland, and the induced expenditure from these new workers in regional economy is more significant. The OECD report concluded that "an increase of one million tonnes of port throughput is associated with an

increase in employment in the port region of 0.0003%" (*Ibid, 26*). Therefore, a ten-million citizens region will have an increase per tonne of 3000 workers.

Nonetheless, port activities also bear negative impacts to the broader notion of territorial development, namely related to environmental issues, traffic congestion and conflicts related to land use. These impacts include air contaminant emissions (eg. oxides of nitrogen -NO2-, oxides of sulphur -SO2-, particulate matter –PM-) and greenhouse gases (eg. carbon dioxide –CO2-, methane –CH4-, nitrous oxide -N2O-), water pollution (eg. oil spills, ballast waters), soil (eg. oil or chemical spills, modification of coastal sedimentation, acidification of soils through acid rain) and waste generation (plastic, glass, cardboard, etc.). The emitted pollutants may have negative consequences for health (eg. cardiovascular, respiratory, neurological or skin problems). Ports may also menace biodiversity through the emitted pollutants and the introduction of alien species through ballast waters that could alter the ecosystem. Ships, cranes, industries road and rail traffic can generate noise and traffic congestion in the area. Finally, some other negative impacts may include local land use conflicts, visual impact, security issues, dust and unpleasant odours.

These negative effects are fundamentally local, while positive economic impact is widespread regionally across the port hinterland except for the directly port-related activities (*Martí Selva et al. 2009; Merk 2013*). Although highly important to territorial development, the large complexity of port impacts compel this researcher to set aside these negative aspects, and focus on the role of ports as engines for regional economic development.

In all, despite the environmental or land use concerns, the positive contribution of ports to regional economic development translates into higher rents and more jobs. Eurobarometers in 2013 showed how unemployment and the economic situation were perceived as the most important problems of EU countries, for the 51% and 33% respectively in September. Since 2009, the barometer elaborated by the public Spanish Sociologic Research Centre (CIS) has repeatedly shown that unemployment is the most important perceived problem of the country, suggested by the 80% of respondents. Economic problems are also important, raised by a 50% between 2008 and 2012, and then decreasing until the current 28% (April 2014), yet only surpassed by corruption and fraud. The positive economic impact of ports together with these social concerns clearly show the societal relevance of a research linked to the economic dynamism of ports. The inclusion of port and logistics among the strategic sectors at the RIS3CV strategy grounds the policy relevance of the field as an engine for regional economic development.

## 2.3 Transformations in the logistics environment and port studies:

This section will first introduce the transformations globalisation has brought into the field of logistics, framing the subsequent discussion on recent developments in port studies. After the identification of some research gaps, the academic relevance of the research will be put forward.

Port economic activities are deeply rooted in the field of logistics, which is defined as the commercial activities integrating the transport of goods from one point –suppliers- to another –customers-, warehousing them in a suitable place, inventorying what, where and how much to stock, packaging goods suitably and undertaking related administrative activities (*Zahurul Islam et al. 2013*). These activities have been recently enlarged by *Langley et al.* to integrate information, handling of goods and security (*2008;* in *Zahurul Islam et al. 2013*). The aim of these processes is "getting in the right way, the right product, in the right quantity and right quality, in the right place at the right time, for the right customer at the right cost" (*Mangan et al. 2008, 9;* in *Zahurul Islam et al. 2013, 4*).

Logistics activities have been traditionally segmented in several modes of transport (maritime, road, rail, air) along the logistics pathway or supply chain operated by many different companies –except for some functions generally dominated by the public sector, such as rail transport or some port services. The acceleration of globalisation has brought about several developments driving logistics operations to become more integrated, globalised, corporatised and competitive.

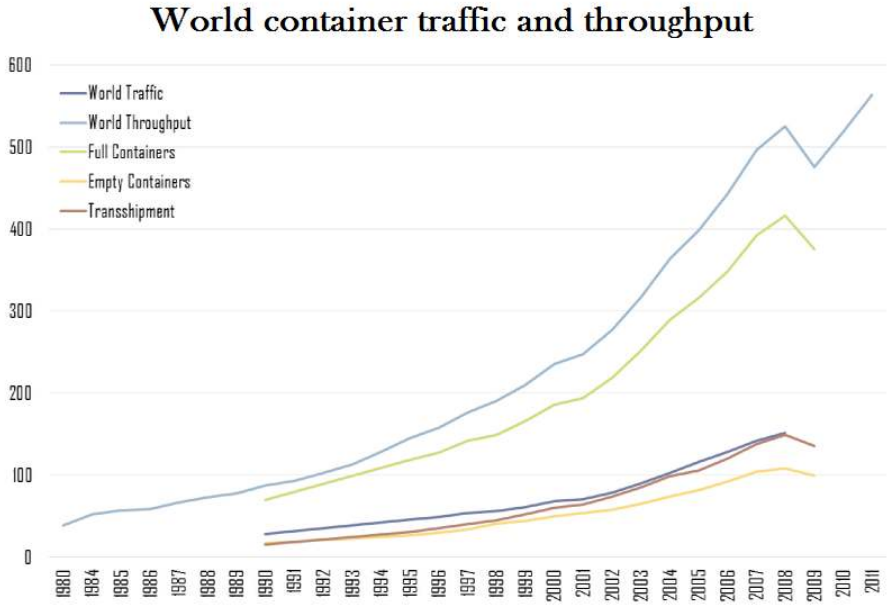



**Figure 1.** World container traffic and throughput. Rodrigue 2013

As shown in the figure above, world maritime traffic has dramatically increased since the 1960s due to the delocalisation of production and consumption geographies and the following liberalisation of world trade. In order to accommodate this growth, the number of ports along routes has also increased. In parallel, technical developments have allowed for an ever increasing size of vessels on the seas, as well as the arrival of the container revolution. The containerisation of cargo has facilitated intermodal exchange, reducing costs and increasing time efficiency. Meanwhile, IT developments made possible a more efficient management of cargo handling and facilitated a stronger integration of logistics processes. Motivated by achieving economies of scale, logistics operators have merged, absorbed or coordinated different processes. However, the winners of this integration have been shipping companies, which have spectacularly increased the concentration of ownership in several major world operators during the last decades, also extending their activities to the terminal and land segment of the supply chain. These actors have increased their power to set the geography of global maritime routes.

Along with the changes brought about by globalisation in logistics and port environment, port studies have also evolved, reaching an important milestone in 2002 with the rise of a new paradigm for understanding port functions in the new scenario.

Maritime research was traditionally linked to economics, geography or engineering research, although port studies became an autonomous discipline in the 1990s (*Woo et al. 2013, 200; Notteboom et al. 2013*), covering issues such as terminal operations, port governance, port planning and development, port policy, port competition or ports in supply chains (*Ibid.*). Since the 1960s, ports were understood as morphological places, a maritime-land interface for handling ships and cargo. This paradigm was enlarged during the 1970s to include existing challenges related to operational efficiency in ports. Alternatively, ports were also understood in the same decade as places with key economic and policy functions. Later on in the 1980s and 1990s, port efficiency was considered to be a function of the governance mechanisms in place (*Robinson 2002*). However, late developments towards a globalised logistics environment (*Ibid*.) have produced a rapid integration of functions and information in supply chains that have become global, the privatisation of some traditionally public logistics functions, the raise of port competition and the emerging power of global integrated logistics operators – megacarriers- controlling huge traffic volumes. This scenario has generated puzzlement around the functions ports and port authorities should play (*Ibid*.).

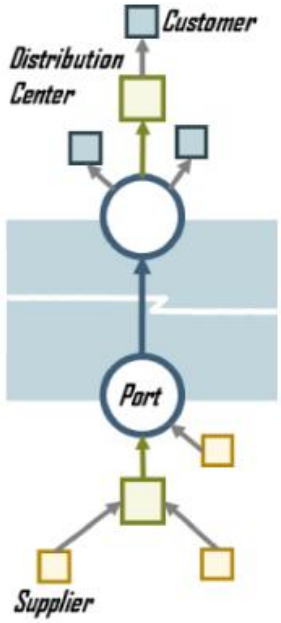



**Figure 2.** Supply Chain. Rodrigue 2013

As a result of this new logistics scenario, Robinson conceives a new seminal paradigm in 2002, endorsed by subsequent literature and becoming one of the most cited sources in port studies. Seaports are thereafter understood as one node among other elements in global supply chains between producers and consumers organised under a port authority (*Ibid*.). The economic success of a port is thereafter related to the capacity of the whole supply chain (and not only the port) to derive value for shipping companies and logistics services operators along the freight handling process (*Robinson 2002*). These supply chains of global reach are defined as "networks of connected and interdependent organisations mutually and co-operatively working together to control, manage and improve the flow of materials and information from suppliers to end users" (*Aitken 1998;* in *Christopher 2012, 4*).

In the light of this new paradigm, the source of added value produced by a port has been enlarged. Port competitive advantage bearing added value was locational first, providing access to markets and workforce, then an infrastructure advantage was added to accommodate ships and handle cargo. Thirdly, the advantage linked to transport capacity and volume from seaport to regional markets was taken on board. Lately, competitive advantages are also extracted from the integration of ports into logistics chains (*Notteboom et al. 2007*), which facilitate the reduction of uncertainty, transaction cost and transport cost (*Notteboom et al. 2001; in Jacobs et al. 2007*). Therefore, the key role of seaports for generating competitive advantage under the new paradigm has shifted from emphasising superstructure and infrastructure provision for ship operations, loading/unloading, terminal storage and intra-port operations towards an emphasis on seaports as an integrated node in the global supply chain (*Song et al 2008., 75*). Under the new paradigm, recent port research has claimed that "the higher the degree of seaport integration in global supply chains, the better logistics companies perform" (*Ibid. 74*). As a result, "port competitiveness nowadays depends to a large extent on the ability of ports to integrate in global supply chains" (*Panayides, in Wang et al. 2007, 36*). This integration is defined as a strong interaction, cooperation, coordination and collaboration (*Song et al. 2008*) between seaports and global supply chains.

Port studies have recently acknowledged that "despite the importance of supply chain integration for ports as well as for port users and other members of the supply chain, there has been limited empirical investigation in this area" (*Panayides et al. 2009, 133*). Indeed, many studies have been published on the efficiency of port operations for several ports, but not that many on port integration in supply chain. Concretely, the Port of Valencia has not been studied yet under this paradigm. Furthermore, Notteboom et al. recall that "most of the work on the role of ports in supply chains is rather descriptive, and there is room for following a more analytical approach" (*2013, 646*). Also, Talley encouraged further research on "how maritime transportation service providers (carriers and

ports) and users (shippers) interact to jointly choose a maritime transport chain" (*2013, 710*).

On the basis of these fresh research gaps identified, this work aims at contributing to academic research on ports under the supply chain integration paradigm over a port that has not been yet addressed through this theoretical approach. Besides, the theoretical framework explained in the next chapter is an attempt to go beyond description of the state of the art of the integration of our case port into global supply chains, analysing and critically reflecting upon the relevant factors for intensifying interaction among two key players in global supply chains (the port and global shipping companies), that were specifically identified by Talley.

## 2.4 Port competitiveness: the embeddedness of global shipping companies

Port competitiveness is a contentious issue. Since "there is no unanimously accepted approach to the roles and functions of ports" (*Bichou et al. 2004, 50*), it is difficult to establish what bears port competitiveness. Many authors have addressed the issue from different criteria of port efficiency and productivity. Taking on board Robinson's new paradigm of ports as nodes in supply chains, Song et al. understand "port competitive performance" beyond port efficiency objectives, as "effectively fulfilling the seaport role in the supply chain" (*2008, 78*), which is correlated to boosting interaction, cooperation, coordination and collaboration (*Song et al. 2008*) between ports and the logistics operators along the global supply chains. Nevertheless this definition remains somewhat vague, providing little orientation on port action for competitiveness.

The OECD synthesis report of a series of port studies makes an attempt to summarise all port competitiveness drivers. Although not comprehensive and open to discussion, they are useful to provide with a picture of the vast complexity of approaching port competitiveness, depending on factors well beyond the expected action of a port authority. Up to four dimensions were identified as key contributors to port competitiveness (*Merk, 2013*), three of them being tightly related to segments of the supply chain: foreland, the port node and hinterland. On the foreland side, enjoying a wide and intense maritime connectivity was crucial. In this vein, the extension and frequency of embedded shipping lines, the quality of the nautical access and the port's internationalisation strategies performance were

considered relevant factors of competitiveness. Secondly, competitive ports are characterised by effective and efficient port operations, through the provision of competitive labour costs and skills, updated and adequate equipment and technology, sufficient land, performing port planning, information systems, port competition and coordination. On the hinterland side, the existence of linkages to other transport modes, sufficient and competitive freight corridors as well as dry ports and extended gates reaching critical markets were also pointed as relevant competitiveness factors. Finally, the fourth dimension is related to port legitimacy through guaranteeing the support of local population, so that port competitiveness could be sustained over time. Not all these drivers can be directly addressed from a port authority. For instance, accessibility to maritime trade will be strongly conditioned to the geographic location along world maritime routes, as well as to the existence of a large enough market within the port hinterland. The import and export raise and fall from the hinterland's economic network lays as well out of a port's reach. The same can be said for the presence and quality of freight corridors which can be influenced, but rarely determined by a port authority.

Bearing in mind both the transformations occurred in the logistics environment as a consequence of globalisation, and the last developments in port studies, this author considers that the definition of port competitiveness given by the OECD points at a crucial contemporary practical issue. Competitive ports are considered as "chosen more regularly than other ports, facilitating the growth of its market share" (*Merk 2013, 48*). In line with Song et al.'s understanding of port competitive performance, this definition implies an enhanced interaction between ports and shipping companies, while it provides a more concrete horizon for port action towards competitiveness.

The increasing influence observed of global shipping companies on shaping the geographies of maritime trade routes by strategically choosing which ports will integrate their flows drives this author to focus on a manageable and highly relevant segment of contemporary supply chains. This segment is the interplay between the local port-node and global maritime trade routes operated by shipping companies. Thus, the insertion of ports into maritime routes guarantees the linkage between geographies of production and consumption along global supply chains. In the current scenario of harsher port competition, the risk of losing maritime traffic in favour of a port competitor does constitute one of the main challenges of ports.

From a different perspective, recent port research also supports the relevance of this segment along the global supply chain, under the premise that maritime trade routes are a footloose component in these chains, in other words, an element not bound to particular places, but subject to continuous changes. On the other hand, ports are eminently local nodes that may or may not participate in global supply chains. Global shipping companies only become territorially

embedded in a specific port location when a place provides specific added value (*Jacobs et al. 2007, 328*). Once they do it, companies invest in that location contributing to its economic development (*Jacobs 2007b*). Following this rationale, port authorities may highly consider fostering the local embeddedness of global shipping companies in order to advance port competitiveness and regional economic development. As Merk himself states, "ports must now provide a range of incentives to shippers and operators in order to attract trade volumes" (*2013, 64*).

## 2.5 Research proposal

Global ports face a major challenge: secure and strengthen their participation in global maritime traffic in order to stand as effective springboards of their hinterland's economic development. The recent developments in the globalised logistics environment have produced deep changes directly affecting ports. The remarkable expansion of maritime trade during the last decades was accompanied by the emergence of new well-endowed competing ports along sea trade routes. Thanks to the technical developments, the ever increasing size of vessels bearing economies of scale reduces in turn the number of ships, which furthermore follow commercial strategies for maximising the profitability of trips implying fewer scales. Therefore, fewer ports are called to participate in international trade. In this scenario, port competition for capturing traffic along routes has exacerbated.

The risk of not being resilient enough to strengthen the port's position among its competitors would imply a loss of traffic volume and maritime routes, severely affecting the connectivity of the regional economic network within its hinterland to the global economy, raising import and export costs for these enterprises and discouraging new industrial settlements, overall causing a negative impact on rents and employment rate, unless these costs were compensated otherwise.

According to the recent academic developments in port studies, competitiveness can be enhanced not only through traditional factors such as location, infrastructure or transport capacity, but also through port integration into global supply chains. Besides, considering the evolution of the globalising

logistics scenario and the increasing role of global shipping companies in shaping the unstable geographies of global supply chains, the goal of this research will be to better understand how the Port of Valencia can secure and strengthen its competitiveness, attracting global traffic flows in order to boost GDP growth and an increase in the employment rate. Grounded on the assumption that each port potentially offers different attributes that offering different competitive advantages to attract global shipping companies, this research will be guided by two questions:

- How do the institutional attributes of the Port of Valencia provide global shipping companies with competitive advantages?
- How could the institutional attributes of the Port of Valencia adjust to provide further competitive advantages to global shipping companies?

To take the endeavour forward, this work will identify a suitable theoretical framework for understanding how the attributes of a local port drive global shipping companies to choose a specific location for their maritime trade operations. Next, the shape and form of these attributes will be examined for the Port of Valencia, analysing how they influence global shipping companies to operate in the port. Finally, a discussion will follow on possible ways of improving the local attributes that influence the choice of global shipping companies.

# 3. Theoretical framework

The third chapter is structured in three sections. The first one will critically discuss new institutional economics school of thought as a suitable theoretical framework for understanding market actors' behaviour face to alternative perspectives. Secondly, the structure of provision approach will be presented as an analytical tool addressing some of the vagueness of the NIE perspective and providing the research with valuable lenses to observe the institutional attributes at the Port of Valencia. The chapter will be closed by the articulation of the conceptual framework explaining the relevant concepts and their interrelations for the purpose of this research.

## 3.1 The pertinence of the new institutional economics perspective

> *"The modern study of institutions offers the promise of dramatic new understanding of economic performance and economic change."* (North 1991, 111)

The next paragraphs will discuss about the suitability of some theoretical perspectives for approaching the economic behaviour of global shipping companies at the Port of Valencia, bringing up their main postulates and critically assessing them in the light of the proposed research aims. The brief review will present new institutional perspective, institutional economics, neoclassical economics and the new Keynesian perspective, discuss their strengths and shortcomings relevant to this research and justify the final choice for the new institutional perspective.

The new institutional economic approach was developed in the 1970s, assuming the institutional claim that institutions shape economic behaviour, and incorporating complexity through some theoretical developments on transaction costs, property rights, the economic theory of the organisation, as well as integrating individual economic rationality mechanisms shared with mainstream

neoclassical economic school. New institutional economics (NIE) asserts that "institutions are human built constraints that structure political, economic and social interaction" (*North 1990 97*). "Together with the standard constraints of economics, institutions define the behaviour of economic actors (*Ibid*.; *Eggertsson 2013, 1*).

Building upon the work of Ronald Coase on transaction costs appeared on *The theory of the firm* (1937) and *The problem of social cost* (1960), institutions emerged as a means for reducing uncertainty in exchange, bearing a decrease in transaction costs. Transaction costs derived from ownership transfer refer to those arisen in an economic exchange caused by the search for information in the market, the bargaining of an economic agreement between operators and the enforcement of contracts addressed to guarantee that the other actor duly observe them. Transaction costs are generated in the "act of acquiring, protecting and transferring property rights" (*Eggertsson 2013, 1*). The actual meaning of property rights is wider than the legal term, referring to "the actual degree of control that someone has over specific dimensions of an asset" (*Ibid*.).

According to this theoretical perspective, the economic players, understood as wealth-maximising individuals will orient their decisions based both on rational economic behaviour and on the transaction costs generated by the institutions in which the economic exchange occurs. Under this rationale, institutions permitting low cost transacting will foster cooperation among economic actors (*Bardhan 1989, North 1990*). Low transacting costs and effective enforcement of property rights allow for gains from trade to be achieved, becoming critical for economic performance of individual actors.

Institutions "consist of both informal constraints (sanctions, taboos, customs, traditions, and codes of conduct), and formal rules (constitutions, laws, property rights)" (*North 1990, 97*). Informal institutions are self-enforced social norms on a decentralised and spontaneous fashion (*Eggertsson 2013, 3*). Formal institutions are "created and enforced by formal organisations (eg. parliaments, courts, business and professional associations, golf clubs)" (*Ibid*.). The evolution of the matrix of informal and formal institutions is incremental (*North 1990, 97*). As a result, institutions are path dependent, thus bound to the past and heavily influential on the future developments of a precise local context. (*Ibid.; Eggertsson 2013*).

As North acknowledges, "it has commonly been the case that the incentive structure provided by the basic institutional framework creates opportunities for organisations to evolve, but the direction of their development has not been to promote productivity-raising activities" (*1990, 109*). Instead, the distribution of power for "using the rules of the game, receive income from, allocate, transform, and sell the relevant assets among different organisations using their rights"

*(Eggertsson 2013, 2*) in different manners has boosted monopolies that restricted competition or redistribution mechanisms that did not result in any rent increase (*North 1990*). The observation confirms there is room for different political stands within new institutional economics.

After the study of this perspective, the author considers that although the reduction of transaction costs by the local institutional matrix incentives economic transaction of actors, NIE offers little theoretical knowledge on how these institutions could actually reduce transaction costs. As a theoretical framework it remains descriptive and open to diverse outcomes. Providing such a wide object of analysis –formal and informal institutions- and little hints on how they reduce transaction costs, NIE may allow researchers to examine such a wide range of elements that may reduce the explanatory power of the theoretical perspective. On the other hand, the economic actors' individual and group rationality based on transaction costs may overlook some alternative important factors for explaining economic behaviour, such as the search for legitimacy. Furthermore, some transaction costs linked to informal institutions may be difficult to identify and measure, such as the supply of a friendly firm image for consumers. The requirements of such an image will be defined by the institutional framework, but all actions of a firm are potential enhancers or destroyers of that image, even if not meant to affect it. A court affair, misfortunate declarations in press of a firm manager or an unexpected accident harming the environment may increase transaction costs, although they are extremely difficult to measure.

Some alternative schools of thought explaining the behaviour of economic actors are institutional economics, neoclassical economics and new Keynesian economics. Some descriptive and critical considerations over these perspectives in relation to this research will be addressed next.

Institutional economics represents an alternative theoretical perspective developed in the early 20th century which has not been substituted nevertheless by new institutional economics. NIE assumes from this tradition that institutions shape economic behaviour. It develops from a critique to classical economics –also applicable to the current neoclassical school- that this approach is "submerged in the analysis of prices and the phenomena of circulation, represents the attempt to provide an economic physiology of the juices of the social body without anatomy (Schmoller 1900, 64)". (Furubotn et al. 2005, 41). Institutions are claimed to play this "anatomy" role under this perspective. Therefore previous utilitarian understanding of individuals based on economic rationality, that barely applied to real economic contexts was contested, focusing instead on institutions as determinant for economic behaviour, claiming the importance of formal rules as well as previously overlooked factors such as culture or social norms. Indeed, methodological individualism is contested under institutional economics, since individuals are also a by-product of institutions.

Although useful to approach in depth the Port of Valencia formal and informal rules that shape economic behaviour of its actors, this approach fails to provide a sufficient understanding on the rationale under which these actors operate. It depicts a convincing framework of analysis but it provides the researcher with little analytical tools.

Secondly, neoclassical economics and new Keynesian economics constitute the mainstream "neoclassic synthesis". Neoclassical economics and their Keynesian review in the 1930s root back to the 18th century on the ideas of classical economists like Adam Smith, David Ricardo, John Stuart Mill or Karl Marx. These perspectives assume that free competition of economic actors drives markets towards perfect allocation of scarce resources, through the adjustment of supply and demand driving markets towards equilibrium. Economic rational choices based on utility maximisation explain the behaviour of economic actors. This translates into buyers/producers purchasing/producing up to the point that one more purchased/produced unit bears less satisfaction/profit than employing purchasing resources in another good/the revenue obtained from saling the last unit.

The neoclassic synthesis offers significant contribution to understanding port actors' economic choices, by describing their rationale based on profit or utility maximisation. However, the highly sophisticated mathematic neoclassical models fail to capture the political, social and cultural complexity of economic behaviour. Neoclassical economics overlooks some relevant factors of economic behaviour, such as the existence of assymetric information or the cost of negotiation that are dependent on local formal and informal rules. Therefore, this perspective offers a relevant input for understanding the economic rationale of port actors, but its rather restrictive abstract models cannot be understood without considering the context in which port actors operate.

All these theoretical issues being considered, new institutional economics offers a useful perspective to address this research. As Merk puts forward (2013), port competitiveness is a very complex concept not only limited to cost related elements such as competitive and skilled labour or sufficient and competitive freight corridors. Other elements such as port planning, port information systems or port competition are also crucial (*Ibid*.). This research will assume methodological individualism and rational economic behaviour from the neoclassical tradition, but as stated by institutional economics and latter picked up by new institutional economics, understanding the "anatomy" of the "juices" of abstract economic flow models is a necessary condition to grasp the complexity of economic behaviour allowing for port competitiveness. The focus on formal and informal institutions shared between institutional and new institutional perspectives enables the researcher to explore the local assets of the port of Valencia and their capacity to offer added value to footloose wealth-maximising

global shipping companies, offering a more complex explanation on their behaviour than a mere economic rationality calculus.

Ports are spaces where economic transactions are constantly produced among actors. Property rights are exchanged on port land (and sea) and port services. The transaction cost perspective exclusively presented by new institutional economics offers a pertinent explanation on the rationale of global shipping companies strategic action in a local institutional context. However, as previously mentioned on the reflection made about NIE, this perspective offers no insights on how these institutions could actually reduce transaction costs. This lack compels to an in-depth exploration of the characteristics of specific local contexts that remains somehow blind, due to the breadth of the concept of institutions. In order to overcome this obstacle, the theoretical framework will be completed with the structure of provision approach, providing with some guidance on what institutions observe in a port scenario.

### 3.2 The structure of provision approach:

New institutional economics frames economic actors' behaviour within economic rational choice constrained by the transaction costs generated in economic exchanges. These transaction costs are shaped by formal and informal institutions. However, new institutional economics says little about how to look at the wide concept of institutions, or how to reduce transaction costs. In order to overcome these limitations, we need a further detailed analytical framework. This research will embrace an analytical framework that has already been applied to port studies in Rotterdam, Dubai, Los Angeles and Long Beach by Wouter Jacobs: the structure of provision

This analytical framework is a tool for "investigating the way ports are institutionally structured", and how this structure influences the strategic behaviour of stakeholders (*Jacobs 2007, 362*). Under the new institutional perspective, Jacobs refers to ports as "territorially embedded in a historically path dependent and contingent institutional framework" (*Jacobs et al. 2007, 328*). Port actors' behaviour is structured by the local institutional framework. Footloose global supply chains may become embedded in a specific port as the diverse actors involved provide critical logistics services (*Ibid*.).

The concept of "structure of provision" was "developed by Ball (1983, 1990) to investigate the political economy of home ownership in the British housing market" (*Jacobs 2007, 362*), but can be applied to any form of building provision. When applied to seaports, the concept aims at observing "the network of social relationships, institutions and organisations –structure- involved in the development, construction, ownership and use –provision- of a specific port's land, infrastructure and superstructure" (*Ibid.*). The concept of "structure of provision" applied to seaports is built on three closely interrelated categories developed by Jacobs et al. (*2007*) and Jacobs (*2007*):

The first category refers to *physical conditions*: specifically, the approach observes the "quality of the port's infrastructure, superstructure and development potential on the port's land" (*Jacobs et al. 2007, 331*). A suitable location, appropriate infrastructure and superstructure, as well as sufficient capacity are *conditio sine qua non* to attract cargo flows (*Jacobs 2007, 362*). Suitable locations are a function of proximity to main maritime routes and/or to main production and consumption centres (*Notteboom et al 2007*). An appropriate infrastructure involves performing berthing, transshipment, storage, warehousing or intermodal facilities, as well as the presence of transport corridors linking the port with regional markets if the port acts as a gateway to the hinterland and not merely as a hub (*Ibid.*). Sufficient capacity is determined by technical and technological developments in shipping, transshipment, storage, etc., as well as by fluctuating traffic demand.

The second category is linked to the *institutional arrangements*: these arrangements are related to the "use, ownership and development of port land and infra/superstructure. Elements considered include property rights, land-use planning, environmental and safety or security stipulations, port tariffs and other relevant regulations" (*Jacobs 2007, 362*). These arrangements constrain, prevent, allow or promote action from actors linked to the seaport.

Thirdly, structure of provision looks at the *governance settings*: these refer to the "division of responsibilities between the public and private sector and between different levels of the state" (*Jacobs et al. 2007, 331*). This setting "plays a key role in the way these institutions and organisations are interlinked in the provision of the physical attributes of the port" (*Jacobs 2007, 362*). Governance settings can be observed at the background of the two previous categories, building up the rules of the game for decision-making processes.

These three categories can be further broken down in 11 categories as summarised in the table below. The "structure of provision" concept allows for a sound "investigation on the territorial embeddedness of key dominant actors in ports" (*Jacobs et al. 2007, 330*), "the way ports are institutionally structured and how it changes through the strategic behaviour of stakeholders" (*Jacobs 2007,*

*362*). The structure of provision approach assumes that the integration of functions and actors along the supply chain reduces uncertainty and transaction costs (*Notteboom et al. 2001; in Jacobs et al. 2007*). Therefore, the approach offers a sound analytical tool to observe more specific institutions and an explanation on how transaction costs can be reduced in order to attract international trade operations of global shipping companies to a specific location. The application of the structure of provision approach to the Port of Valencia will shed some light on how these interactions between institutions and organisations unfolds.

| **Structure of Provision approach** |
|---|
| **Physical conditions** |
| **Infrastructure and superstructure**: The infrastructure and superstructure comprise elements such as berthing and docking space, wharf and terminal space, all the equipment for handling cargoes (cranes, chassis…), ship services (tugs, pilotage, fresh water, waste disposal, etc.) and the inland transport connections from/to the port (road and rail). |
| **ICT**: Information and Communication Technologies refer to the application of computer means for exchanging data among different stakeholders and substituting paper-based operations for electronic-based operations. |
| **Hinterland connectivity**: This category refers to the infrastructure for transporting freight from the port to the final consumer in the region under the economic influence of the port, namely logistics areas, road and rail connections to final market and intermodality. |
| **Institutional arrangements** |
| **Taxes and tariffs**: Tariffs are linked to the cost of port services (towage, pilotage, mooring, water supply, solid and oil waste collection, etc.) and taxes to the charges paid to the Port Authority for using port infrastructure (ship tax, navigation assistance tax, cargo tax, etc.). |
| **Contracts**: They refer to the agreements for service exploitation (towage, pilotage, mooring, water supply, solid and oil waste collection, etc.) and use of port infrastructures (terminals) by private companies. |
| **Security and Safety**: This category refers to the state and international regulation against illicit traffic, terrorism, as well as to the undertaken health and customs inspections. |
| **Environmental regulation:** They relate to the adoption by the port of regulation towards strengthening environmental sustainability, (EU, state, regional regulation). It also refers to self-regulation as a part of companies' and the Port Authority's CSR and |

| |
|---|
| eco-efficiency efforts. |
| **Port model**: This element is linked to the ownership structure and planning procedures of the port, and the roles and relationships among private and public actors. |
| **Labour laws and organisations**: This aspect deals with the labour management model of port services, labour regulation and structure of labour organisations, the most important being cargo handling. |
| **Customs:** Customs refer to the regulation of the flow of goods in and out from the country and the administrative procedures needed to import and export goods through the Port of Valencia |
| **Governance structure** |
| **Governance**: Governance deals with the decision making system of a port, to the different levels (EU, state, region, local government, port management board) and the different participating actors (public authorities, private enterprises, civil society actors). These decisions concern all aspects of port development: infrastructures, ICTs, hinterland connections, taxes and tariffs, contracts negotiation, security and safety, customs operations, distribution of public/private roles, environmental protection and labour rights. |

Table 1. Structure of Provision approach

### 3.3 Conceptual framework:

Competitive ports have been recognised as springboards for economic development of their hinterland (*Song et al. 2008, 73*), boosting GDP growth and jobs. Among the definition controversy, this research will be guided by OECD's understanding of port competitiveness, as "ports chosen more regularly than other ports, facilitating the growth of its market share" (*Merk 2013, 48*).

In the wake of the changes globalisation brought to the logistics environment, Robinson's new paradigm conceives ports as nodes in supply chains between producers and consumers (*2002*), with anchorage, berthing, stocking and other facilities handling ships and cargo (*Rodrigue 2013*), organised under a port authority and competing with other seaports and global supply chains in deriving value for shipping companies and logistics services operators along the freight

handling process (*Robinson 2002*). The key port actors making possible the insertion of a port-node into global supply chains have stood out even more clearly during the last decade: global shipping companies. This is due to the exacerbated port competition for attracting maritime traffics and the increasing influence exerted over the last decade by fewer megacarriers and global shipping companies in setting international maritime routes between production and consumption geographies. The embeddedness of these key port actors by providing them with competitive advantages has become a major concern for the port authorities aiming at securing the insertion of their ports in global supply chains.

Port competitive advantages are in fact "derived" advantages, created for shipping companies and logistics services operators participating in the freight handling process along the supply chain (*Robinson 2002*) so that they can outperform their competitors. Port logistics operators can obtain competitive advantages either by supplying customers with an equal value for lower cost than their competitors, or by supplying with more value through differentiation at a higher cost (*Porter, 1985*). The source of these advantages has evolved and enlarged. First this advantage was locational, providing access to markets and workforce, then an infrastructure advantage was added to accommodate ships and handle cargo. Thirdly, the advantage linked to transport capacity and volume from seaport to regional markets was taken on board. Lately, competitive advantages are also extracted from the integration of logistics chains (*Notteboom et al. 2007*), which facilitate uncertainty, transaction and transport cost reduction (*Notteboom et al. 2001; in Jacobs et al. 2007*).

In the current globalised logistics environment, strengthening the competitiveness of the Port of Valencia in the global markets implies especially -beyond the three traditional advantage sources-, emphasising the ability of the seaport to fulfill a new role operating as part of an integrated global supply chain system (*Song et al 2008, 73*). Port integration in global supply chains is defined as an increasing degree of "cooperation, coordination, interaction and collaboration'' (*Ibid.*) of seaports –as a logistics node of the supply chain- with global supply chains –defined as the connected and interdependent organisations cooperatively working together to control, manage and improve the flow of materials and information from suppliers to end users (*Aitken 1998;* in *Christopher 2012, 4*). This argument is supported on recent developments in port research which have acknowledged that the higher the degree of seaport integration across the global supply chain, the better logistics companies perform (*Ibid.*).

According to the structure of provision approach, the capacity of a port to provide footloose global shipping companies with competitive advantages is subject to the local path dependent institutional framework (*Storper 1997, in Jacobs et al. 2007*), defined as "both informal constraints (sanctions, taboos, customs, traditions, and codes of conduct), and formal rules (constitutions, laws,

property rights)" (*North 1990, 97*). Different institutional frameworks would either favour/hamper integration of supply chains, reducing/increasing transaction costs and therefore resulting in more/less attractive ports for global shipping companies to operate.

By analysing the institutional attributes of the Port of Valencia a discussion can be held on how the local structure facilitates port integration in global supply chains, also acknowledging the traditional factors of port competitive advantages. The eventual identification of new sources of competitive advantage could drive global shipping companies to choose the Port of Valencia among other ports, therefore increasing port competitiveness and regional economic development of its hinterland.

# 4. Methodology

The fourth chapter is divided in four sections. A critical reflection is first presented upon the choice for a pragmatic qualitative research design and the case study as a research method. Secondly, the data collection procedures, the research steps followed, the problems encountered and the way they were addressed will be displayed. The chapter will finally explanain the undertaken process of data analysis along this research.

## 4.1 Research design: a pragmatic qualitative strategy

This part discusses the foundation of the research design, setting the plan and procedures allowing the researcher to implement a rigorous agenda for inquiry, data collection, analysis and interpretation of results.

The goal of this research is linked to solving a practical problem of the Port of Valencia, offering as an outcome a reflection on ways to secure and strengthen its position along the Mediterranean maritime routes, as a means to enhance the economic development of its hinterland. There are several philosophical worldviews when designing research. Among the most important ones we can find post-positivism, a vision concerned with the verification of theories that explain reality that usually requires quantitative methods (*Creswell 2008, 7*). Since our inquiry is not deem to verify theory for explaining how reality works, but use theoretical considerations to solve a problem, post-positivism does not seem to be the most adequate framework. Constructivism is a second worldview focused on understanding the meanings individuals attribute to reality in order to build up theory, usually requiring qualitative methods (*Ibid. 8*). This vision supports relevant approaches for this research such as understanding the perception of the Port of Valencia for global shipping companies, but by focusing on generating knowledge for developing theory, it fails to address practical problems. Thirdly, a participatory worldview defends the interwovening of research with political

action, pursuing a change in collaborating participants' lives (*Ibid. 9*). The link this vision holds between research and change is highly relevant, although the scale of change seems overambitious for this research, which is not addressed to political or social issues but to more concrete challenges. Finally, a pragmatic worldview is concerned with solutions to problems, turning to all approaches available to understand the problem, using both quantitative and qualitative assumptions and different research methods, techniques and procedures best suiting the specific needs of the problem (*Ibid. 10*). The pragmatic vision is the one offering the most adequate framework for the research purposes of this work, since it takes practical problems as points of departure and allows for applying theories and research methods to reflect on solutions. On the other hand, one of the weaknesses of this worldview consists of the limited contribution to theory it may bring about.

The pragmatic worldview allows researcher to include quantitative, qualitative and mixed strategies. Quantitative research are highly relevant for testing theories deductively by examining the relationship between variables susceptible to be numerically measured (*Ibid. 4*). In turn, qualitative strategies are adequate for understanding the meaning individuals or groups ascribe to a social or human problem, involving the collection of data in the participants' setting, the conduction of an inductive analysis and the interpretation of data by the researcher (*Ibid.*). Finally, mixed methods refer to the integration of the two previous strategies, mutually reinforcing their results (*Ibid*).

The theoretical framework of this research does not provide with a theory explaining the causal relationships between measurable variables. New institutional perspective and the structure of provision approach rather offer a framework for understanding which are the relevant institutional to observe how the attitudes and behaviour of relevant actors are shaped, but not how these factors operate. The structure of provision approach is conceived as a map to find institutional relations between actors from an inductive perspective. Moreover, the research aims at unravelling how institutional settings in the Port of Valencia influence global shipping companies to perceive this particular location as an attractive supply chain node to be connected. This can be done by exploring the understanding of relevant actors about pertinent issues on their setting, and complementing the results with an interpretation from the researcher. Considering all these reasons, qualitative strategies offer an appropriate framework to address such a research.

## 4.2 Research method: the case study

There is a wide diversity of research methods for undertaking social research, such as experiments, surveys, histories, archival records analysis or case studies (*Yin 2002, 3*). As stated by Flyvbjerg, "good social science is problem driven and not methodology driven in the sense that it employs those methods that for a given problematic, best help answer the research questions at hand" (*2006, 242*). This section aims at exploring some of the existing research methods and choosing a suitable one for this study.

The first step towards a convenient choice is to examine our research questions: How do the institutional attributes of the Port of Valencia provide global shipping companies with competitive advantages? And how could the institutional attributes of the Port of Valencia adjust to provide further competitive advantages to global shipping companies? These "how" questions look for "operational links that have to be traced over time, rather than mere frequencies or incidences" (*Yin 2002, 6*). Some methods such as surveys or archival records analysis are too narrow in scope to explain complex causal links as pursued in the research question. In turn, experiments require control over behavioural events, which constitutes unfeasible conditions in this case. The research questions inquire about present challenges, making histories also unsuitable as a method.

Case studies are "empirical inquiries that investigate a contemporary phenomenon within its real-life context" (*Ibid. 13*), and they are a useful tool for explaining presumed complex causal links, for describing certain topics and actions within the real-life context in which it occurred (*Ibid. 15*). This method is relevant "where the richness derived from context is an added element to gain in a piece of research" (*Madureira 2013, 4*), and where the variances within a complex context are key to understanding the existing interactions.

The present research is supported on new institutional perspective, focusing on a wide range of formal and informal institutions shaping market actors attitudes and behaviour. The structure of provision analytical framework further sharpens these institutions into an observable list of attributes described in the previous section. Assuming the context-dependent nature of institutions, this research pursues to offer a description of these institutions at the Port of Valencia, an analysis on how these institutions shape the economic behaviour of global shipping companies, and a reflection on how could these institutions evolve in order to shift global shipping companies economic behaviour towards the Port of Valencia. The case study is a suitable method contributing to this script since it allows for approaching the contextual wealth in order to understand complex causal links, describing port institutions and the variances grounding relevant

attitudes and behaviour of global shipping companies, and collecting data directly from the studied scenario.

One of the most common concerns about case studies are that they "provide little basis for scientific generalisation" (*Yin 2002, 10*), since feeding back to a general theory is not possible from a single case study. Actually, the pragmatic understanding of the research proposal is more concerned with combining existing theoretical frameworks underused at the Port of Valencia (eg. Robinson's new ports paradigm) with participants' understandings and covering existing gaps beyond descriptive studies, by using an analytical framework for reflecting upon some alternatives for the specific institutional context, rather than with contributing to any pretended general, universal and predictive theory. However, this does not mean the criticism over case studies is totally true. Indeed, the replication of the study with similar results in different contexts may contribute to some scientific generalisations. Although some differences exist, similar theoretical framework and methodology to this research have been already conducted for studies at the ports of Dubai, Los Angeles, Long Beach or Rotterdam (*Jacobs et al. 2007, Jacobs 2007, 2007b*).

This research will focus on the single case study of the Port of Valencia. The type of traffic selected covers both import/export and transshipment grounded on two main considerations. First, the societal relevance of studying a potential regional economic engine covering a hinterland severely affected by a harsh economic crisis extending from 2008 until the present, with its most dramatic face has been the rise of the unemployment rate, from 8.3% in 2007 up to 26% in 2013, according to the Spanish National Statistics Institute (INE). Cutting-edge regional development research may offer a modest contribution to fight against increasing poverty and social exclusion. Secondly, the academic-professional relevance of finding good and bad lessons from a port along one of the busiest world maritime routes that ranked first in container traffic among the Mediterranean ports in 2012 and lost its position in favour of Algeciras in 2013. The acquired knowledge about the local context after three years of political sciences graduate studies in the city has also facilitated the contextualisation of observations and the interaction in the local languages with participants.

The research design validity has been carefully addressed. The assumed key role of institutions has been developed into observable attributes through the structure of provision approach. Information on each element will be collected on a triangulation fashion using different sources, reinforcing construct validity. Acknowledging the limitations for generalising conclusions from the single case study, external validity has been reinforced through the application of a previously used theoretical framework addressing port actors' attitudes and behaviour in other locations. Internal validity during the data analysis has been addressed through confronting rival explanations. Finally, reliability has been enhanced

through guiding steps and procedures followed during the research supported on a case study protocol, allowing for auditing and replication of the study explained next, and a case study database has been developed.

### 4.3 Data collection:

This section will present the data collection procedures, the research steps followed, the problems encountered and the way they were addressed. Information on each element of the structure of provision was collected from different sources. In order to ensure triangulation and increase the quality of research, the study has combined public documents (mass newspapers, specialised reviews, port newsletters, formal studies of the Port of Valencia, regulation), internal documents (internal working documents), face-to-face or phone semi-structured interviews to key stakeholders, and direct observation of the port, its activities and actors (guided tour to the Port of Valencia, interaction with researchers and port workers at the Fundación Valenciaport documentation centre). The research has been guided through a series of logical steps:

| Research Steps | |
|---|---|
| 1 | **Gatekeeper authorisation**: An abstract of the research project was elaborated, presented and discussed with the Subdirector General of Port Strategy and Transformation of the Valencia Port Authority (Juan Antonio Delgado). He was successfully invited to sign a credential authorising my data collection among the port community actors. |
| 2 | **Preliminary data collection** started with the analysis of public and internal documents together with direct observation in the port. The data collection from documents and direct observation was continued in parallel to the subsequent steps. With the obtained preliminary information, Questions for each of the elements of the structure of provision were prepared for the interviews. |

| | |
|---|---|
| 3 | **Identification of key stakeholders** for conducting interviews: the main identified stakeholders were the Port Authority and global shipping companies. Other private logistics operators in the port such as terminal operators, freight forwarders or consignees have not been directly targeted. Other stakeholders, such as stevedoring trade unions or the port research institute played an auxiliary role to complete missing parts of the story. |
| 4 | **Contact to stakeholders**: Relevant, available and willing interviewees were identified through a brief research on their website and a first phone contact with the company, in which the research project was presented. Subsequently, a formal e-mail was launched including the credential, a personalised cover letter presenting the research and interview, and the specific interview questions that would be asked. |
| 5 | **Interviews**: Interviews were performed either face-to-face or by phone. Interviews were recorded when authorised by the interviewee, and draw notes were taken along the interview. |
| 6 | **Codification:** Immediately after each interview, the notes and recordings were re-read, transferring the relevant information into the interview guides, ascribing each information to one of the categories of the structure of provision |
| 7 | **Case study database**: A library of collected information from members of the port community. It contains the recordings of the interviews and the codified interview guides. |

**Table 2.** Research steps

A case study protocol was prepared along the research process (annex 1), containing the overview of the case study project presented in first mail or phone contacts, the credentials requested to the Port Authority to collect information among the key port community actors, a cover letter model sent to participants , a list of relevant enterprises and other actors to interview, an interview planning, a contact list, the information actually sought and the questions guiding interviews, included in annex 1.

The identification of key stakeholders was conducted in relation to the conceptual framework. The key actors making possible the insertion of ports into global supply chains are the footloose global shipping companies, identified as those firms holding a share of the total maritime freight traffic above 1.5% operating in the Port of Valencia (see annex 1). For this research, NYK Line, ZIM and Hanjin Shipping were successfully interviewed. Other private logistics operators in the port such as (exclusively) terminal operators, freight forwarders or consignees have not been directly targeted, due to their often localised nature and the limited resources of the research. The Port Authority represents the

second key stakeholder, as the public body concerned with port competitiveness and port management as a whole. Responsibles for the strategic planning department and the environmental department were targeted in this research. Other stakeholders, such as stevedoring trade unions (Confederació General del Treball) or the port research institution (Fundación Valenciaport) were included when the information resulted visibly biased towards a specific group of actors, or some elements for the analysis were lacking. In respect to the anonymity request of some interviewees and researchers' confidentiality ethics, only the type of institution and a number will be revealed when referring to the authorship of their responses.

Data collected has included the characteristics of the institutional attributes of the Port of Valencia framed under the structure of provision approach, primarily obtained through public and internal documents, and completed through interviews. Secondly, data was also collected on how the local institutional attributes shape the behaviour of global shipping companies, primarily through interviews and auxiliary through public and internal documents, as well as direct observation. The information linked to the different elements of the structure of provision was collected in individual blocks, guided by the generic questions in the table below. For the interviews, 4 to 5 open questions adapted to the general and local challenges in each block were designed (see annex 1).

| Guiding questions |
| --- |
| Is (institutional attribute x) of the structure of provision relevant for the embeddedness of global shipping companies in the Port of Valencia? |
| How do different aspects of (institutional attribute x) enable global shipping companies to become embedded in the port? |
| How do different aspects (institutional attribute x) hamper global shipping companies to become embedded in the port? |
| How crucial are the identified enablers and hampers in relation to each other? |

**Table 3.** Guiding questions

The process of data collection found substantial difficulties along its progress. First, there was a late launch of contacting stakeholders from the researcher side, due to the lack of the researcher's initial knowledge on port studies, requiring extensive preliminary reading. Secondly, despite the immediate acquiescence for the research verbalised by the gatekeeper, the credentials presented on that day were only signed 20 days later, once contact had been made with most of the actors. Also, access to large shipping companies for interviews has been complicated. This might be due to communication errors, to their perception

of the research issues as a part of their strategic reserved information or to the late remittance of the port authority credentials. As a result, only a meagre response rate was obtained among global shipping companies after a first phone contact, an ensuing targeted e-mail and a follow up e-mail (43%) and the lower positive response (28%). Finally, the structure of provision approach has been very useful to clearly identify what are the relevant institutions when addressing transaction costs in port environments, although their comprehensive categories make the breadth of the information sought rather vast. The 11 institutional attributes challenged the elaboration of a single interview model, making segmentation of issues necessary to appropriately grasp all the complexity. As a result, only a part of the planned interviews could be successfully conducted.

These problems were addressed through an intense early effort to understand the general framework and relevant challenges of port studies, insisting with follow-up e-mails to potential interviewees, and using public and internal documents as well as direct observation to fill the data gaps. Also interview responses were not locked on the addressed institutional attributes, but crossed comments on different categories were also codified.

### 4.4 Data analysis:

The collected information will go through a process of analysis based on the structure of provision approach and guided by the two research questions. On this section, the articulation of data within the research analytical framework developed under the next chapter will be explained. Following the two research questions, the analysis will be divided in two parts. Finally, some considerations on constructing internal validity will be also displayed.

The first part of the analysis aims at answering how the institutional attributes of the Port of Valencia provide global shipping companies with competitive advantage. According to the structure of provision approach, the collected data has been ascribed to 10 different institutional categories. Governance has been addressed as a cross-cutting issue affecting all institutional attributes, therefore it is addressed along the previous institutional categories. However, the artificial division that once helped to identify relevant port institutions may lock the analysis in the artificial categories. In order to avoid this risk, the analysis will build bridges towards other categories.

For each category, the information has been divided into “backgound settings”, “direct impacts” and “impact assessment”. The first and the second parts

will reflect the findings of the empirical research. The third one will be eminently analytical, based on the previous findings. More in detail, the first tag –background settings- refers to the institutional characteristics and dynamics impacting the Port of Valencia that cannot be changed directly from the port itself (eg. EU regulation, market dynamics). The second part refers to the institutional settings and dynamics directly affecting the economic behaviour of global shipping companies in the port. Finally, the "impact assessment" part will address the influence of each institutional attribute on global shipping companies' economic behaviour vis-à-vis their port operations in the Port of Valencia. The analysis will also develop along the assessment of the competitive advantages or disadvantages that the institutional setting shapes for global shipping companies, especially referring to transaction costs when the institutional attributes visibly influence the integration of supply chains, acknowledged by the literature as the forefront source of differentiation among port competitors in the globalised logistics scenario (*Song et al. 2008*).

In turn, in the second part of the analysis, the findings and their analysis will ground a critical discussion on how the institutional attributes of the Port of Valencia could be adjusted to provide global shipping companies with further competitive advantages, raising the competitiveness of the port and positively impacting on the regional economic development of the port hinterland. The aim of this discussion will be breaking the 11 analytical boxes to present creative and practical suggestions.

Finally, the internal validity of the analysis remains an important issue to strengthen the overall research. This can be fostered by doing wxplanation-building on the impact of institutions over global shipping companies' economic behaviour.

# 5. Research results and data analysis

The chapter on research results and data analysis will first describe ports, their functions, actors and roles. Secondly, an overview will be presented on the recent developments globalisation has brought to the logistics environment in which ports have become a node, elaborating on the present day challenges. Thirdly, the Port of Valencia will be featured historically and institutionally, offering an overview on the current types of traffic, their growth trends and its geo-economic position. Section four will show the findings on each of the elements of the structure of provision for the Port of Valencia, and an analysis on how the institutional attributes provide with competitive advantages shaping the economic behaviour of global shipping companies, aiming at answering the first research question. This section will address eleven attributes of the Port of Valencia: 1) infrastructure and superstructure, 2) ICT, 3) hinterland and foreland connectivity, 4) taxes and tariffs, 5) contracts, 6) security and safety, 7) environmental regulation, 8) port model, 9) labour law and organisations, and 10) customs. 11) Governance will be a cross-cutting issue discussed along the ten addressed attributes. Finally, an integrated analysis of the competitive (dis)advantages of the Port of Valencia resulting from local institutions will intend to break the boxes built through the structure of provision approach. Fifth, these findings and analysis will ground a critical reflection on how the institutional attributes of the Port of Valencia could adjust to provide global shipping companies with further competitive advantages, attracting more international maritime traffic and therefore unleashing the positive economic impacts of ports on regional development.

## 5.1 Port functions and actors

"Gateways" was the meaning Romans gave to the word *portus*, referring to the spaces reserved to serving ships in sites with access to navigable waters (*Rodrigue 2013*). Commercial ports grew around cities offering suitable geographical conditions, abundant workforce and significant markets. Vessels specialisation emerged after World War II, although loading and unloading bulk and general cargo took for weeks until the containerisation revolution in the 1960s. This innovation facilitated quicker operations and the construction of bigger containerships, fostering berths redesign, the installation of port cranes, an increased use of storing and warehousing space and an easier intermodal transfer of freight in containers among ships, trucks and trains (Rodrigue 2013).

In the wake of the 21st century, ports have been reconceptualised as nodes along supply chains where logistics functions develop from suppliers to consumers (*Rodrigue 2002*). This node connects the maritime segment of the supply chain with the land segment through a series of maritime operations -pilotage, towage, mooring- terminal operations -loading/unloading from ships or trains to yards, storage, stacking, security and administration- and land logistics operations -transloading, road and rail transport distribution-, while offering services to freight -warehousing, transshipment- and ships -refuelling, repair, piers, etc- (*Rodrigue 2013*), as illustrated below. However, this work will only address the most significant freight transport activities, bearing a larger impact on regional economic development of the hinterland.

The functioning of a port involves many different actors. There are managing and regulatory actors such as the port authority, the harbour master's office, customs and quasi-customs services, transport operators, port service operators, terminal agents or insurance-related actors. The specific organisation and role of actors differ among regulatory systems. In the Spanish context the main actors of a port are detailed next inspired by the work of Palacio López (*2011*) and direct port observation.

The port authority is the public organisation in charge of the port organisation and economic exploitation, having the power to levy taxes and fees for the use of port facilities. They manage port services –usually through private companies-, approve their tariffs and authorise concessions and contracts. They are also responsible for port development planning, environmental protection or port related research. It is steered by a board of directors led by a general manager.

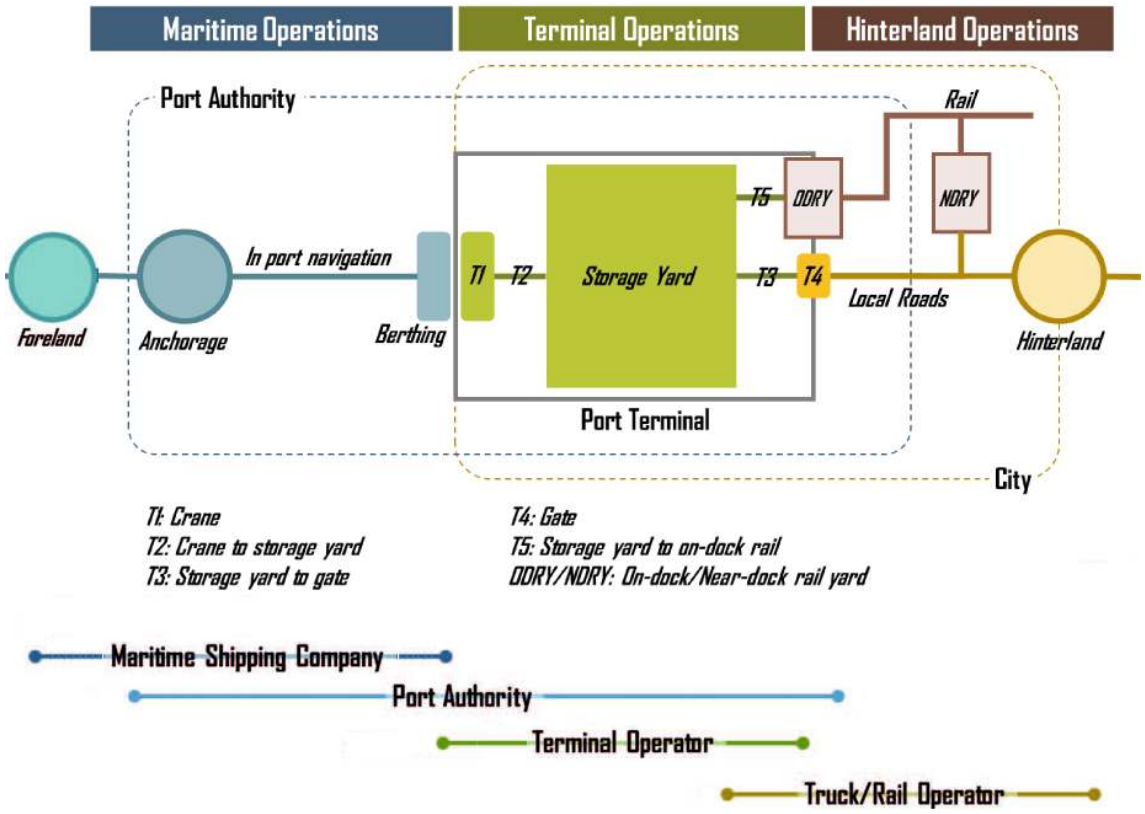



**Figure 3.** Seaport Operations. Adapted from Rodrigue 2013

The harbour master's office or maritime headquarters is in charge of the shipping movements within the state's sovereign waters, namely authorising the entry of ships, the control and regulation of shipping activity, maritime security, maritime rescue and marine environment protection.

There are several transport operators along the supply chain directly concerned with ports. Carriers are organisations shipping cargo on behalf of their clients. Two types of carrier can be distinguished: the contracting carrier is the agent assuming the contractual responsibility of transporting the cargo, while the actual carrier is the agent executing the transport. Indeed, the property, provision and exploitation of vessels are not always equivalent: the shipowner owns the ship, the ship operator manages the crew and can also be a shipowner, and finally the shipping company commercially exploits the ships, eventually being also a ship operator and a shipowner.

In the terminals, the terminal operator is the organisation managing a container terminal, responsible for the load and unloads operations management, storage on the terminal and transport within the terminal. They are equipped with adequate heavy superstructure –cranes, forklifts, etc.- and they usually operate port terminals under long term leases issued by the port authority.

The workers operating machinery at port terminals for transporting cargo within the terminal, loading and unloading cargo from terminals to ships and ensure the safety and stability of the ship are the stevedores. Stowage societies can be private or public. In the Port of Valencia, there is a public society of stevedores.

The consignee is a weakly regulated figure, allowing for important differences concerning their functions in different ports. They are private organisations designed by shipowners in charge of the provision and representation of the ship. Before the arrival of the ship to the port consignees announce its arrival, route and allowed cargo for the different ports to port service operators and clients in the hinterland, and run the entry administrative procedures vis-à-vis the port authority, the harbour master's office and customs. Once the ship is in berthed, consignees assist the captain in different administrative procedures, provide her or him with funds if needed, and assumes responsibility over the loaded/unloaded cargo. Finally, when the ship sets sail the consignee delivers cargo received to the next logistics operator, collects the fees from the chartered slots on the ship and represents the shipowner's interest in case of claims.

Another relevant transport operator is the freight forwarder. This organisation refers to firms organising, controlling and coordinating international shipments –by land, air or sea- for a charge. They undertake necessary administrative procedures for import/export clearance, warehousing, consolidation and deconosolidation of cargo and manage insurance and banking services in representation of their clients: hauler or final clients.

At the end of the supply chain we find the clients, the parties contracting cargo transport to a transport operator for being imported or exported.

The port also provides a series of services provided by third parties. Pilots facilitate the entry and exit to and from the port, as well as the necessary ship manoeuvres within the port waters. Mooring services consist of the assistance provided to the manoeuvring ship to get securely stopped beside the berth and the inverse operation. Towage refers to the operation of coupling the ship to a tugboat providing it with motion force that helps the ship completing the manoeuvre in port waters, oriented by the ship captain orders.

Key to international trade are customs, the official organisation in charge of collecting customs taxes and duties –namely cargo duties, VAT and special taxes. They are also responsible for enforcing importation, exportation, transit and storage regulation. On the other hand, customs agents are professionals authorised by the state customs to apply customs law and dispatch cargo to consignees and freight forwarders on behalf of the official customs.

Beside customs, there are several quasi-customs services managed by different state Ministries. The first is the official service for the inspection and surveyance of imports and exports (SOIVRE), in charge of controlling the commercial quality of export products. Second, the plant protection office surveys the introduction of damaging organisms for plants within the state. Finally, the foreign health office controls the health risks of transported goods for human consumption, including a veterinary inspection on animals and animal products, a pharmaceutical inspection of medicines, cosmetics and pharmaceutical products, and a medical inspection to protect the life, security and health of citizens.

Finally, insurance agents are intermediary professionals between insurance companies and clients among port operators, easing the extremely complex policies and intervening in the clearance in case of accidents.

## 5.2 Globalisation and the transformation of port environments:

A glance at the transformations of the environment in which ports operate over the last decades will shed some light on the shape and complexity of the current issues at play. Since the 1960s, this environment has become more "globalised, corporatised, privatised and exceptionally competitive" (*Robinson 2002, 251*).

The acceleration of economic globalisation since the 1960s and 1970s has implied the delocalisation of production and the emergence of a global market (*Rodrigue, 2012*), giving rise to global supply chains. The emergence of distant geographies of production and consumption facilitated by the reduction of travel cost, improved communications and liberalisation of world trade, together with the integration of new countries into capitalist model of consumption has remarkably increased the volume of world maritime traffic, world container throughput and information flows. This increase has only suffered a short interruption in the aftermath of the recent financial crisis. As a result, a number of new well-endowed ports has emerged along world maritime routes, increasing port competition to attract growing maritime throughput. Some examples of these new competitive ports along the Mediterranean maritime route are Tangier in Morocco, Gioia Tauro in Italy, or Marsaxlokk in Malta, which have obtained a large share of container traffic in the Mediterranean, especially linked to transshipment traffic.

The technical developments precipitated since the 1960s have dramatically altered maritime trade. **Containerisation** at the end of the 1950s revolutionised transport allowing for an easier, quicker and safer freight handling that could be easily exchanged between ships, trains and trucks capable of accommodating these units. Technologic developments have gradually increased the **size of vessels** since the 1950s as shown in the picture below, generating scale economies as capacity for TEU transportation (twenty-foot equivalent unit, synonym of a standard container) was further increased. This has been accompanied with improved berthing and cargo handling machinery capacity, productivity and more recently, eco-efficiency. As a consequence, more TEUs are transported in less vessels covering global maritime routes, and this more selective traffic is complemented with feeders among neighbouring ports.

In parallel, **IT developments** facilitated a more efficient electronic tracking, administration and coordination of freight along the logistics pathway. Furthermore, **deregulation** of previously state-controlled transport modes since the 1980s, restrictions to private multimodal operations or freight rates (*Hesse 2002*) as well as **amortisation** of huge public investments on core infrastructures - port terminals, railways, etc.- have allowed for a deeper penetration of companies into transport systems thanks to reduced entry costs as well as to new forms of contractual agreements and ownership. As a result of the changes occurred since the 1960s, the vertical integration of logistics separate processes along the pathway has accelerated through different forms of cooperation and takeovers among logistics operators.

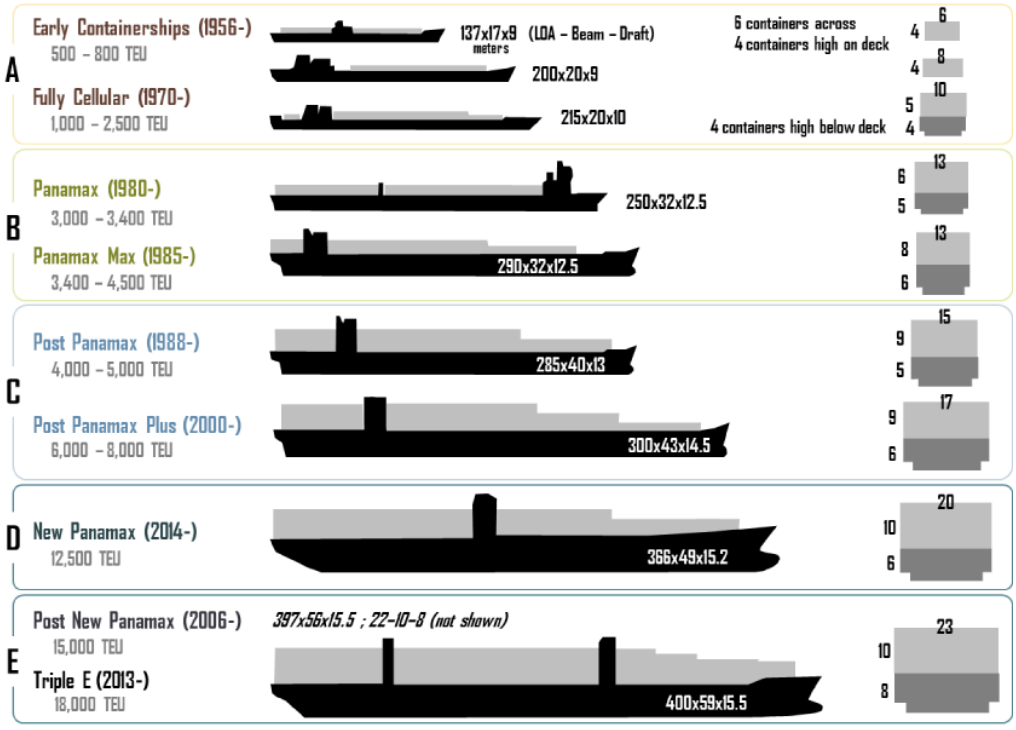



**Figure 4.** Historical evolution of vessels size and capacity. Rodrigue 2013

Increased traffic of goods enabled regions to bring their specialisation up to the global scale, resulting in world competition increase. In turn, this enhanced competition impelled for the generation of higher value in firms. One way of doing it was through the externalisation of logistics activities to specialised companies. Containerisation, IT developments, deregulation and market demand for specialised logistics services operators increased the attractiveness to compete in the logistics sector, entailing enhanced firm strategies to reduce their costs. This was achieved through the networking of different transport modes, facilitating a more efficient exploitation of the each mode's advantages (*Hall et al. 2001 in Coca Castaño 2013, Rodrigue 2013*). From a transactional costs perspective, Robinson argues that the integration of activities undertaken by separate companies along the logistics pathway generates economies of scale, adding value to the supply chain as represented on the left (2002). This is based on the assumption that each firm in fragmented logistics pathways covers its costs plus margins, while total costs can be reduced with fewer companies undertaking integrated activities (Ibid., 248). This trend towards vertical integration of the logistics processes has favoured the emergence of megacarriers that are involved not only in shipping, but also in terminal operations, stowage and even land freight forwarding (eg. APM-Maersk).

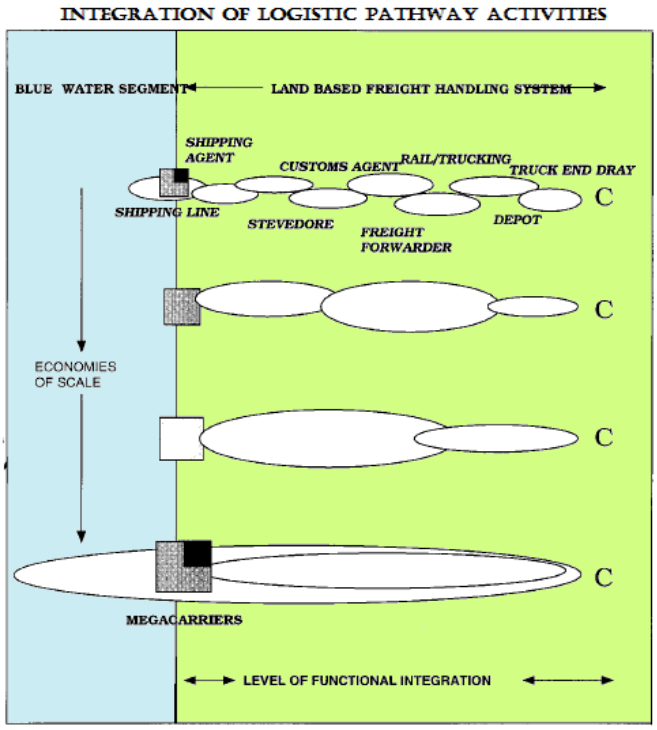



**Figure 5.** Integration of logistics pathway activities. Adapted from Robinson 2002, 249

The generated economies of scale have benefited large companies' acquisitions, entailing a concentration of ownership, particularly in container shipping. "The 20 largest carriers controlled 26% of the world slot capacity in 1980, 42% in 1992, 58% in 2003 and 81% in 2013" (*Rodrigue, Notteboom and Slack, in Rodrigue 2013*). Indeed, the role of shipping lines and terminal operators has expanded considerably vis-à-vis port authorities, local and national governments (*Slack et al. 2002; Notteboom 2004 in Jacobs 2007, 363*) in influencing port competitiveness. Some of the largest shipping lines (listed below) have formed strategic alliances with competitors, cooperating to pool joint vessels on main commercial routes and therefore fleet extra ships on other routes, avoiding overcapacity risks of the ever larger vessels built. The P3 alliance (APM-Maersk,

MSC, CMA-CGM) gathers 36.8% of global container traffic, the G6 alliance (Hapag Lloyd, APL, MOL, OOCL, NYK Line and Hyundai MM) accounts for the 17.4% while the CKYH alliance (COSCO, Hanjin, Yang Ming and K Line) reaches a 11,9% of the global share.

Reduced competition in shipping implies a growing influence of leading shipping companies –some of them considered megacarriers that have merged with or acquired terminal operators and land freight forwarders- on choosing ports of call, therefore affecting the integration of ports and their hinterlands into global supply chains (*Ibid*).

Overall, the increase of world maritime traffic and container throughput has encouraged the emergence of new competitor ports along world maritime routes. More recently, the slight downturn of the financial crisis together with the larger size and decreasing number of vessels covering international trade routes has exacerbated the race to attract global maritime traffic among competing ports. The outcome of this race will be further influenced by the strategic decisions of global megacarriers and leading shipping companies as a result of the rapid concentration of the world maritime traffic share in fewer hands. In a prospective study carried out of by Drewry consultants, the evolution of the world maritime container traffic was expected to be between a yearly 6% to 8%. However, the traffic through the Mediterranean Sea is not expected to reach the 5% growth.

| Alphaliner Top 25 as at 1st January 2013 | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | Total existing | | | Orderbook | | | |
| # | Operator | teu | ships | % Chart | teu | ships | % existing | Share |
| 1 | APM-Maersk | 2,584,922 | 605 | 49.7% | 448,874 | 33 | 17.4% | 15.4% |
| 2 | Mediterranean Shg Co | 2,225,011 | 454 | 53.5% | 254,774 | 23 | 11.5% | 13.2% |
| 3 | CMA CGM Group | 1,384,428 | 408 | 63.7% | 130,144 | 15 | 9.4% | 8.2% |
| 4 | Evergreen Line | 723,378 | 182 | 47.1% | 376,876 | 38 | 52.1% | 4.3% |
| 5 | COSCO Container L. | 716,868 | 162 | 46.4% | 149,330 | 18 | 20.8% | 4.3% |
| 6 | Hapag-Lloyd | 632,049 | 139 | 48.7% | 92,183 | 7 | 14.6% | 3.8% |
| 7 | APL | 576,163 | 126 | 58.0% | 196,600 | 19 | 34.1% | 3.4% |
| 8 | Hanjin Shipping | 573,977 | 110 | 52.7% | 178,444 | 25 | 31.1% | 3.4% |
| 9 | CSCL | 549,192 | 140 | 25.6% | 98,952 | 12 | 18.0% | 3.3% |
| 10 | MOL | 506,239 | 110 | 51.6% | 87,200 | 7 | 17.2% | 3.0% |
| 11 | OOCL | 449,905 | 98 | 38.7% | 132,576 | 12 | 29.5% | 2.7% |
| 12 | Hamburg Süd Group | 421,159 | 103 | 49.1% | 167,040 | 26 | 39.7% | 2.5% |
| 13 | NYK Line | 400,669 | 94 | 25.0% | 52,832 | 4 | 13.2% | 2.4% |
| 14 | Yang Ming Marine Transport Corp. | 358,132 | 83 | 35.8% | 49,750 | 9 | 13.9% | 2.1% |
| 15 | K Line | 352,754 | 71 | 65.3% | 9,592 | 1 | 2.7% | 2.1% |
| 16 | Hyundai M.M. | 347,325 | 59 | 71.0% | 90,615 | 10 | 26.1% | 2.1% |
| 17 | Zim | 318,180 | 84 | 53.5% | 148,168 | 13 | 46.6% | 1.9% |
| 18 | PIL (Pacific Int. Line) | 297,312 | 144 | 32.9% | 89,612 | 24 | 30.1% | 1.8% |
| 19 | UASC | 271,034 | 46 | 22.1% | | | | 1.6% |
| 20 | CSAV Group | 258,754 | 56 | 81.4% | 34,400 | 4 | 13.3% | 1.5% |
| 21 | Wan Hai Lines | 159,238 | 70 | 14.0% | 13,596 | 3 | 8.5% | 0.9% |
| 22 | HDS Lines | 86,320 | 21 | 94.7% | | | | 0.5% |
| 23 | X-Press Feeders Group | 78,695 | 61 | 93.5% | 3,960 | 2 | 5.0% | 0.5% |
| 24 | TS Lines | 75,946 | 37 | 95.8% | | | | 0.5% |
| 25 | NileDutch | 65,565 | 31 | 98.0% | 14,000 | 4 | 21.4% | 0.4% |

**Figure 6.** Top 25 world container shipping companies. Source: Alphaliner Review 2012

## 5.3 The Port of Valencia:

> *"El puerto de Valencia se ha convertido por méritos propios en el principal motor de crecimiento y competitividad de la Comunidad Valenciana y en uno de los principales de España" (Men-Car 2013, 6)*
>
> *"The Port of Valencia has become on its own the main growth and competitiveness engine in the Region of Valencia, and one of the most important ones in Spain" (*translated by the author from Men-Car 2013, 6*)*

The city of Valencia was developed 3 kilometres away from the sea. Along the regular sandy coastline, ships stopped in an unappropriate location since no deep waters or natural shelters were in place. In the late 15th century, the king of Aragon gave permission for the construction of a wooden U-shaped quay allowing for relatively sheltered trade with other Mediterranean cities, starting the history of the port. Dockyards were built in the along the same century for storage, warehouse and naval production and repair. Precarious wooden infrastructure was substituted by stone breakwaters and quays only in the 18th century. It was only in the context of the emergence of capitalism and industrial society since the mid 19th century that port development accelerated, welcoming trade, fishing, military and passenger traffic. The inner harbour was closed and new docks enlarged the port area towards the sea and the South. Containership terminals and superstructure was developed before other competitor ports, the first container being handled in 1979. During the last decade, the first inner harbour has been split from the channels of the commercial port and opened to the sea through a new northern access. This section has been transferred to the city council, contributing to the city-port integration and shifting its use to recreational and big sport competitions such as the America's Cup or the Formula One. Also a major enlargement of the commercial port to the North was approved in 2006 (see the updated port map at the end of the section).

Present day port is a "general interest" port competence of the state, managed by the Port Authority of Valencia (PAV), a public enterprise acting under private law following business criteria. The PAV also manages the smaller nearby ports of Sagunt and Gandia which represent less than a 10% of the PAV's traded tonnes (*Valenciaport 2013*). The Port of Valencia is specialised on container traffic (85% of port traffic by tonnes) as both an interoceanic hub –a platform for international transshipment- and gateway –a platform allowing for importation and exportation of goods and switching transport modes. The share of transshipment and import/export traffic is divided approximately at an oscillating 50%-50% rate (Alfonso, 2013).

Beside container traffic (% of PAV's total tonnes), other goods handled are non-containerised general cargo (11,7%) –machinery, automobiles, food, building materials, etc.- liquid bulk (5,5%) –liquified natural gas, oils, chemical products, wine and beverages-, dry bulk (3,1%) –cereals, cement, clinker, minerals, fertilisers, etc.- and fish catches (0.8%). It also receives passenger traffic of line connections to the Balearic Islands, Italy and Morocco, cruise traffic, and recreational sailing (Valenciaport 2013).

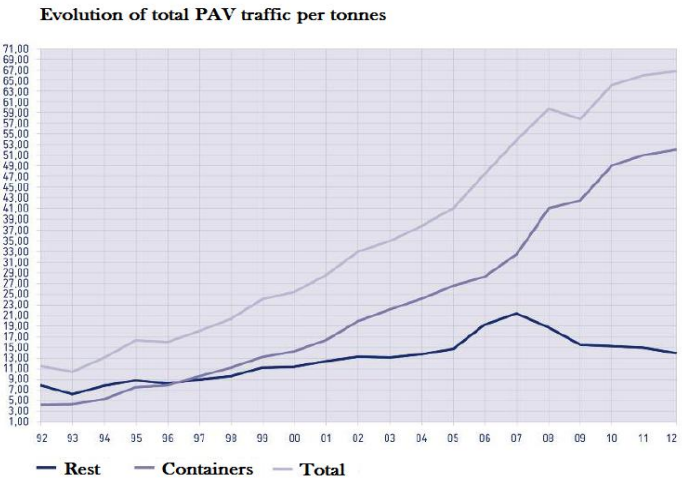
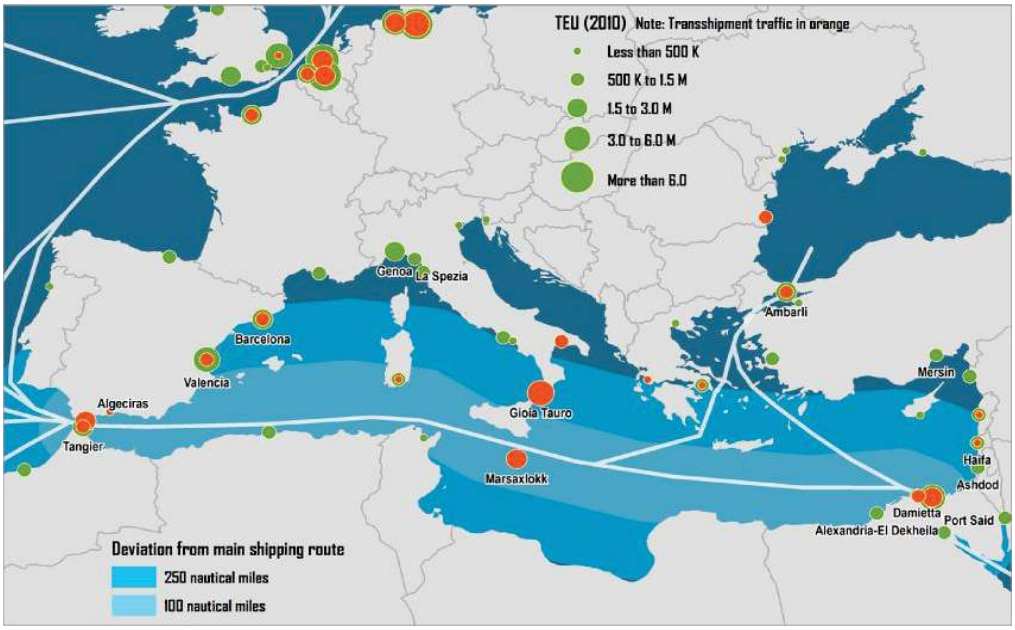



**Figure 7.** Evolution of total PAV traffic per tonnes. Valenciaport 2013

The evolution of container traffic has experienced a fast steady growth for more than 20 years as reflected on the graph above, only broken in 2013 when it slightly decreased again, as a result of the loss of transshipment and export traffic. Indeed in 2012, the Port of Valencia ranked the 1st Mediterranean port in container traffic with 4,47 million TEUs (followed by Algeciras, Ambarli, Piraeus and Gioia Tauro), the 5th in Europe (after Rotterdam, Hamburg, Antwerp and Bremerhaven) and the 30th in the world. The last ranking shows how the port of Algeciras, in the straight of Gibraltar has caught Valencia at the Mediterranean top.

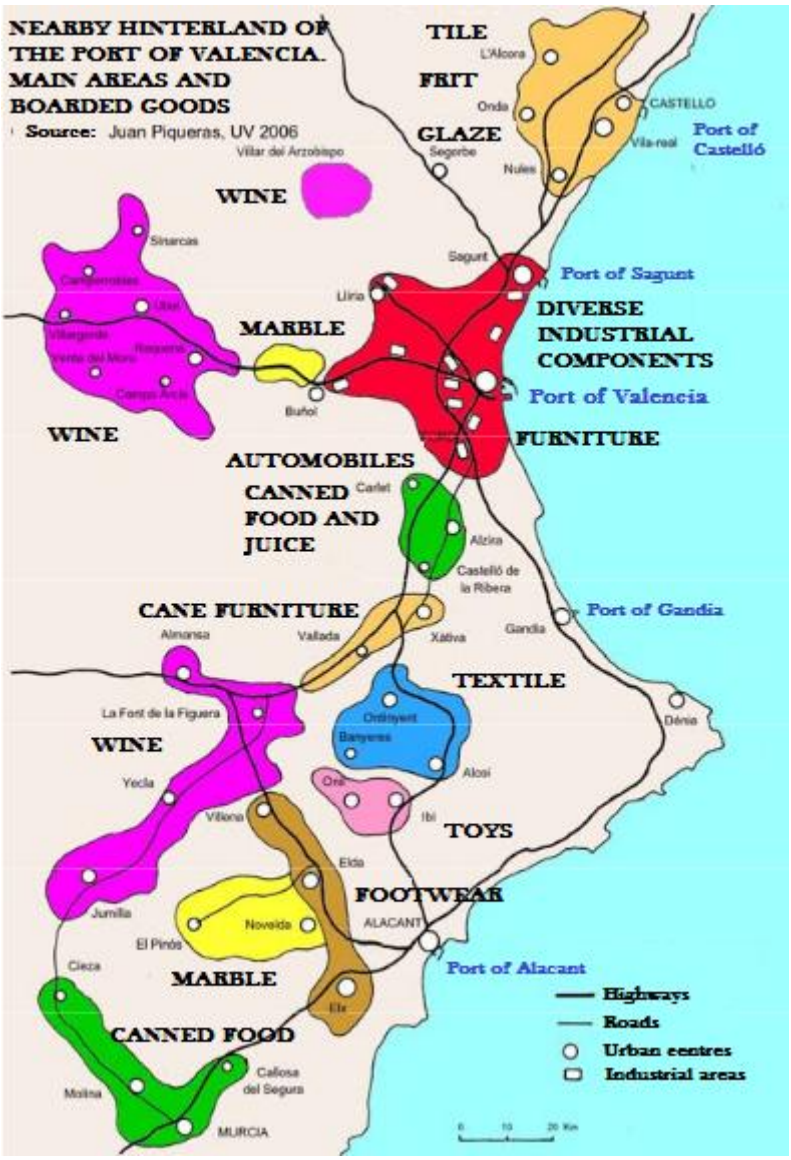
The Port of Valencia is located along the Mediterranean route connecting Europe with South and East Asia trade and North American East coast with Europe and Asia. The main containers transshipment traffic competitors of the Port of Valencia are located along the Mediterranean Sea as shown in the map below. Some of the competitor ports are essentially transshipment hubs, such as the young ports of Marsaxlokk (Malta), Gioia Tauro (Italy), Algeciras (Spain) and Tanger Med (Morocco), all located at a short distance from the main route. The ports of Barcelona (Catalonia, Spain), Ambarli (Turkey) and Piraeus (Greece) are mixed hub-gatway ports competing for transshipment traffic. The ports of Marseille (France), Genoa and La Spezia (Italy) are mainly gateways that hardly compete for the same hinterland nowadays. The picture shows also the time deviation from the main route to the Port of Valencia compared to the direct competitor ports. In a time scale, the deviation translates into 0 shipping hours for Algeciras, 7h for Valencia or 18h for La Spezia from and back to the main route.




**Map 1.** Mediterranean trade route and ports. Rodrigue 2013

On the other hand, port competitors for importation and exportation of container traffic are major ports with overlapping hinterlands –area of economic influence-, namely the port of Barcelona (Catalonia, Spain), and to a much lesser extent the ports of Bilbao (Basque Country, Spain), Algeciras (Spain) or Sines (Portugal). Although the port of Algeciras ranked first in 2013 in total container traffic in the Mediterranean Sea, the port of Valencia is still on the top for import/export traffic, channelling a 40% of the Spanish foreign trade containers, according to the general manager of the PAV, Mr. Rafael Aznar (*Valenciaplaza.com 2013*).

The Port of Valencia is geographically located at the centre of the Region of Valencia, with more than 5 million citizens (consumers), and it is the closest sea access to the Region of Madrid, with more than 6.4 million inhabitants. The Port Authority considers the reach of the port area of influence some 350 kilometres around it, which would include more than a 51% of the Spanish GDP and 56% of the state active population (*Delgado 2012*). According to Mr. Rafael Aznar, the Port of Valencia has more than 100 regular lines connected with more than 1000 port sites in the five continents (*Valenciaplaza.com 2013*). As a result of this privileged connectivity, Professor Piqueras Haba claims that the economic network on the port's immediate hinterland illustrated below, has largely benefited from such a competitive advantage (*2004*). Delocalisation and industrial restructuring in Europe pushed traditional industries towards specialisation and the enlargement to new markets. The second imperative for boosting regional economic competitiveness was largely facilitated by a well connected port at the backdoor.




**Map 2.** Main economic areas and boarded goods. Piqueras Haba 2006


**Map 3.** Port of Valencia Map. Adapted from Mencar 2013

## 5.4 The structure of provision of the Port of Valencia

This section devoted to the structure of provision of the Port of Valencia will show the findings of this empirical research and analyse how the institutional attributes of the Port of Valencia provide global shipping companies with competitive advantages, which will orient their economic behaviour towards choosing the port as a centre for operations. Such an outcome will strengthen the accessibility of the economic network of the port hinterland to global markets, as well as reduce their import/export costs. The resulting competitive advantage would drive -if properly managed- to GDP and employment growth in the economic region. Findings will be divided in the different elements of the structure of provision. This approach provides the framework for bringing down to the port context what is actually meant by "institutions", and puts forward a rationale for understanding economic actors' behaviour: profit maximisation and transaction costs reduction. The analysis assumes that port institutions shape these transaction costs, and favourable environments for supply chain integration will incentive global shipping companies to operate in the port. For each attribute, the background settings and direct impacts found during the empirical data collection will be explained, followed by an analysis on the impact of the institutional setting into economic actors' behaviour. This section will address the following attributes of the Port of Valencia: 1) infrastructure and superstructure, 2) ICT, 3) hinterland and foreland connectivity, 4) taxes and tariffs, 5) contracts, 6) security and safety, 7) environmental regulation, 8) port model, 9) labour law and organisations, and 10) customs. Governance will be a cross-cutting issue discussed along the ten addressed attributes. A summary of the structure of provision analysis on the Port of Valencia is shown in annex 2. The final part will integrate the competitive (dis)advantages of the Port of Valencia resulting from local institutions.

### 5.4.1 Infrastructure and superstructure

This part refers to the infrastructure for transporting freight from the port to the final consumer in the region under the economic influence of the port, namely logistics areas, road and rail connections to final market and intermodality. The structure of each of the parts elaborating on specific institutional attributes of the Port of Valencia will first show the findings, and then analyse them. Findings will be subdivided into background settings, linked to the institutional

characteristics and dynamics impacting the Port of Valencia that cannot be changed directly from the port itself, and direct impacts, referred to the institutional settings and dynamics directly affecting the economic behaviour of global shipping companies in the port. Finally, findings on institutions and their impact will be analysed making use of the transaction cost approach and the neoclassic profitability maximisation rationale, relating the resulting institutional setting to the pertinent competitive advantages the port is capable of deriving for global shipping companies.

The Port of Valencia has traditionally enjoyed a privileged position in peninsular containership traffic, since it adapted its infrastructure to accommodate containers in the 1970s before than other competitor ports (company 3), early attracting container shipping companies. Currently, the Port of Valencia counts with 3 equipped container terminals, up to 15 quays of 16 metres depth (except for the Llovera quay's "rock", still too expensive to remove), the maximum berthing line having 1500 metres long at the Príncipe Felipe quay (*Valenciaport 2012*). All necessary port services are in place, and the area is connected by road and rail with the high capacity transport system in the hinterland posing no major traffic congestion problems. These characteristics make the port similar to other also well-endowed Mediterranean competitor ports.

The last developments on port logistics has seen a progression in the size of vessels requiring for longer berthing lines and deeper waters in ports. The deployment of large vessels such as the new "Triple E" with capacity for 18 000 TEUs, and needing 14.5m depth and 400m long for berthing will increase economies of scale and reduce the environmental impact of sea shipping per TEU. According to the APV, this type of vessel will not become a standard, but only used in high cargo traffic routes, such as Europe – Far East trade (*Delgado, 2013*). Beard recalled that beside adapted infrastructure, what it really counts for attracting this traffic is that there is enough TEU demand in a port hinterland to provide with such a large cargo (2014).

The characteristics of the existing infrastructure and superstructure a has direct impact on the economic behaviour of global shipping companies. Company 1 asserted they were sufficient to accommodate present day containership traffic and only in the future the port should increase the depth of its channels and berthing space, as it is being done with the northern enlargement. The only dedicated terminal in the port, belonging to MSC, a member of the 3P alliance together with APM-Maersk and CMA-CGM, would need however more berthing metres to accommodate the "Triple E" vessel, as Maersk does currently in Algeciras.

Currently, the dedicated MSC terminal has the best endowment in terms of cranes and labour organisation (*Valenciaport 2013,* trade union interviewee), the

main weakness being the lack of direct rail access to the terminal (company 2). Company 3 underlined that despite infrastructure is in place, the superstructure of the public terminals (TCV and Noatum) is obsolete and less efficient than other ports. The need for investing in more quicker, productive terminal equipment for accommodating late generation traffic was also acknowledged by Noatum itself (*Ferrer Soriano 2013*). Company 3 qualified as a "missed train" the little efforts made towards semi-automatisation of terminals, a large investment that takes several years to become fully operative, allowing terminals to become more productive by reducing the time of movements and labour cost. The main competitor ports, Barcelona and Algeciras have both already launched terminal semi-automatisation works in 2009 and 2007 respectively.

The main recent infrastructure and superstructure investment in port development has been focused on the Northern enlargement, approved in 2006 and funded by public and private investment, that would allow for doubling the current port container storage capacity generating 18 000 direct, indirect or induced jobs (*Zaragoza 2013*). The enlargement was planned at a time in which the port grew at an annual 15% rate, according to the APV, who recognises that due to the improvements in ICT and the slowdown of the container traffic growth rate in the port, "the northern enlargement is not necessary". Nowadays, only a cruise terminal is operative, works are paralysed and the huge investment has had a negative effect on the port's debt. Nevertheless, the PAV considers debt limitation as "an environmental menace of the new port regulation" on its Strategic Plan 2010-2020 (*AT Kearny 2011*). What is more, despite a 100% utilisation will prevent terminals from absorbing demand peaks (*Delgado 2013*), company 3 states that public terminals are currently below the 50% of their total capacity.

The Port Authority is responsible for port development planning and promote adequate infrastructures and port services responding to the needs of a land-sea intermodality (*art. 26 Royal Legislative Decree 2/2011*). Company 3 acknowledged that a new terminal may increase intra-port competition to the benefit of shipping companies, although the investment was not completely bound by economic rationality. Indeed, the interviewee suggests a parallelism between the influence of the weapon industry on US politics to the lobbying construction companies exert over the PAV's management board for endeavouring in large infrastructure developments.

Over these findings, we can highlight how this institutional attribute has shaped some of the competitive advantages and disadvantages the port offers to global shipping companies. First, the initial handicap of a low deep sandy coastline was overcome through effective dredging, only encountering major problems on a rock at the Llovera quay. Secondly, the early infrastructure adaptation to container traffic resulted in the early attraction of shipping companies, generating some path dependence especially concerning the importation and exportation traffic towards

the centre of the peninsula, less volatile than transshipment traffic. Nevertheless, the loss of superstructure productivity in public terminals face to other ports may result in higher costs for companies, especially when semi-automatised terminals are fully operative in Algeciras and Barcelona. On the other hand, MSC dedicated terminal has higher productivity even without semi-automatised superstructure and pooling stevedores from the same company as other public terminals. This may contribute to securing the operations of the P3 alliance, despite the relatively reduced berthing space discouraging Maersk operations with this the Triple E vessels in favour of Algeciras. Finally, the Spanish political culture has worryingly normalised the influence of powerful construction companies over some politically appointed managers. If, in line with the findings, such an influence is de facto reaching PAV port development decision making, it may generate stronger bargaining (transaction) costs for shipping companies when they become involved in port development agreements as members of the port community, and the outcome of those agreements may entail higher opportunity costs than business opportunities among global shipping companies.

### 5.4.2 Information and Communication Technologies

Information and Communication Technologies refer to the application of computer means for exchanging data among different stakeholders and substituting paper-based operations for electronic-based operations. Following the structure of the previous institutional attribute, first findings will be detailed divided referring to the background setting, and then to the direct impact, and secondly the findings will be analysed.

The new logistics scenario has found in ICT a privileged allied to dramatically reducing costs, time waste and human errors, as well as increasing security, immediacy and traceability. On their race for cost reduction, shipping companies highly consider these advantages, which are driving ports towards paperless administration and electronic information management.

The Port of Valencia has pioneered the development of ICT systems in Spain since the 1980s (*García de la Guía 2013*). The implementation started with the internal development of ITC systems in the PAV, customs and terminal operators. Since 1995, the EDI (electronic data interchange) was introduced for "different administrative documents, such as call requests, summary declarations, dangerous goods declarations and the reception of authorisations" (*Ibid. 22*). In the late 1990s

firms of the port community started exchanging information on a centralised system, but it was in 2006 when an integrated ICT tool allowed for electronic data interchange among all private and public (PAV, customs, maritime headquarters) members of the port community, including logistics operators from the sea (shipping companies), the port (consignees, terminal operators) and the land segment (carriers, freight forwarders) of the supply chain (*Mulet 2005*). The platform is known under the commercial name of Port Community System (PCS).

The PCS has allowed port community actors to enjoy a centralised platform acting as a single window for dispatching administrative documents and authorisations between firms along the logistics chain and port public bodies (PAV, Maritime Headquarters, Customs and Ministries involved in quasi-customs inspections) (*Ibid., García de la Guía 2013*). When a vessel calls to port, there is an automatic management of pilotage, towage, berthing in terminals, mooring, waste disposal or water supplies services. The electronic management of loading and discharge lists allows for immediate coordination between ships and terminal operators, facilitating the organisation of movements in the terminals as the PAV reported. According to García de la Guía, despite the increasing capacity of vessels, the average time stay for import containers in the port decreased from 8 days in 2002 to 2 days in 2012 (*2013*). Paperless clearance for importations and exportations substituted officers by automatic road gates, bringing the average operation time from 5 minutes down to a few seconds, clearing previously existing queues road congestion once initial implementation errors were corrected and allowing for the number of TEUs transported to be doubled in 10 years since 2002 (*Ibid*., APV 1, company 3). The access of all logistics operators involved in port activities has also increased the traceability of cargo. Furthermore, the PAV supplies with a users' assistance service for managing PCS.

Concurrently, the PAV is or has been also involved in different ICT related projects (PLECTRA, MEDITA, FREIGHT4ALL, MONALISA 2.0, INTE-TRANSIT, etc.) linked to regional network firms use of traffic information flow (*Fundación Valenciaport 2013e*), electronic information interchange among maritime transport, dry ports and multimodal platforms (*Fundación Valenciaport 2013c*) or further integration of IT systems of operators along the logistics chain (*Fundación Valenciaport 2013, 2013b, 2013d*).

The implementation of the Port Community System and the engagement of the PAV with ICTs has been highly valued by all interviewed companies unanimously as having a positive impact on the competitiveness of their operations in the port. It was qualified as "very efficient and attractive" (company 1) or as a "model" for other ports or a "great PCS" (company 3), and considered more efficient, quicker and more secure. Company 3 also underlined that PCS works better than Barcelona's PORTIC and way better than Algeciras' TELEPORT. The only minor flaws relate to some customs processes that are still not integrated,

but need to be done through the Spanish tax agency (Agencia Tributaria) website. This is also common to Algeciras and Barcelona.

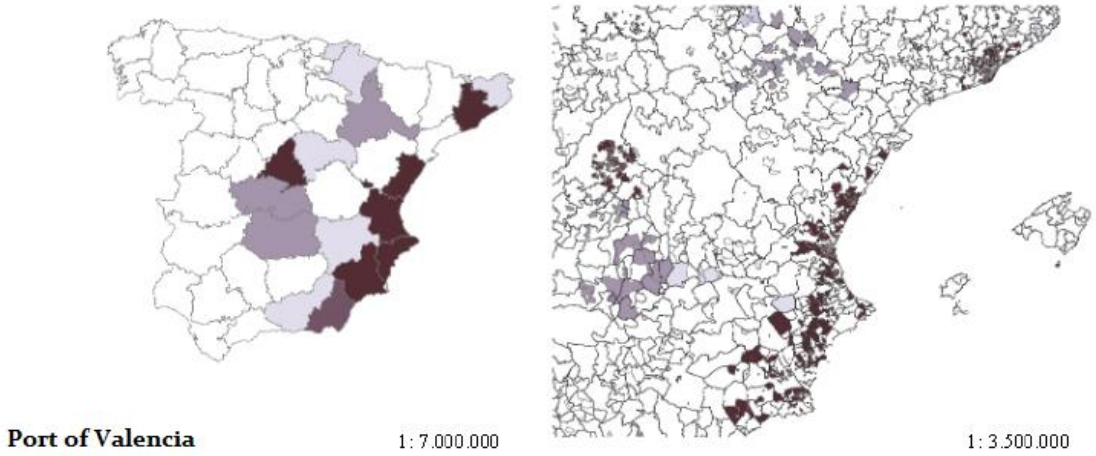
The development of ICT solutions has been led by the PAV, but it has enrolled all members of the port community (PAV 1, company 3), considered by some respondents as the key to its success (company 3).

Considering these findings, we can acknowledge that the early PAV commitment and leadership with ICT development since the 1980s and with getting port actors involved has resulted in a world class virtual information interchange platform that has entailed a rampant reduction of information transaction costs for the whole port community. This was achieved despite initial bargaining transaction costs linked to pooling individual IT systems into a centralised virtual platform. The legal functions of the PAV has institutionally favoured its leadership among port community actors, together with the PAV's inclusive disposition and firms' willingness to collaborate. As a result the Port of Valencia currently outperforms its direct competitor ports, offering global shipping companies with an important advantage in terms of supply chain integration. Information exchange between shipping companies, port public agencies, port services, terminals, consignees, freight forwarders and land carriers is perceived by companies as efficient. Furthermore, the PAV keeps working on extending the integration of information to final consumers in the hinterland, dry ports and multimodal platforms, which may entail further information transaction cost reduction for the embedded supply chains.

### 5.4.3 Hinterland connectivity

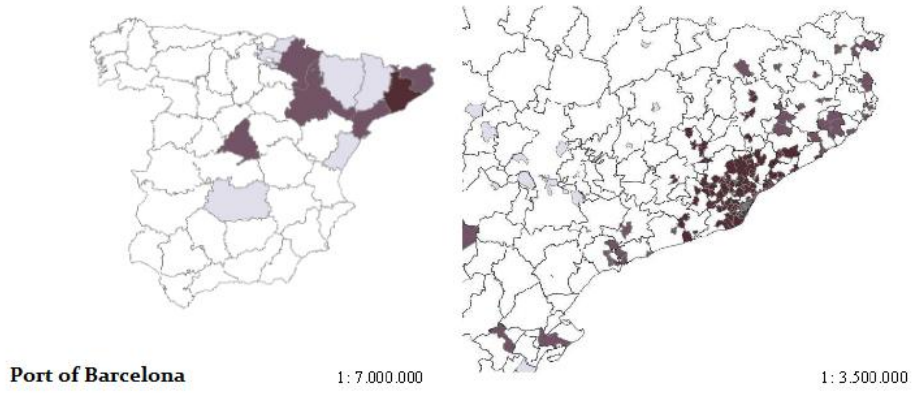
The hinterland is the area over which a port exerts its economic influence. It is not a well established region; it changes over time and may differ among traded goods (*Notteboom 2009*). Port connectivity to its hinterland deals with the infrastructure for transporting freight from the port to the final consumer in the region under the economic influence of the port, namely logistics areas, road and rail connections to final market and intermodality.

A port's hinterland is closely related to its geographic position. The Port of Valencia is located in the centre of a region with 5 million and a dynamic economic network until the global economic crisis and the local housing bubble burst in

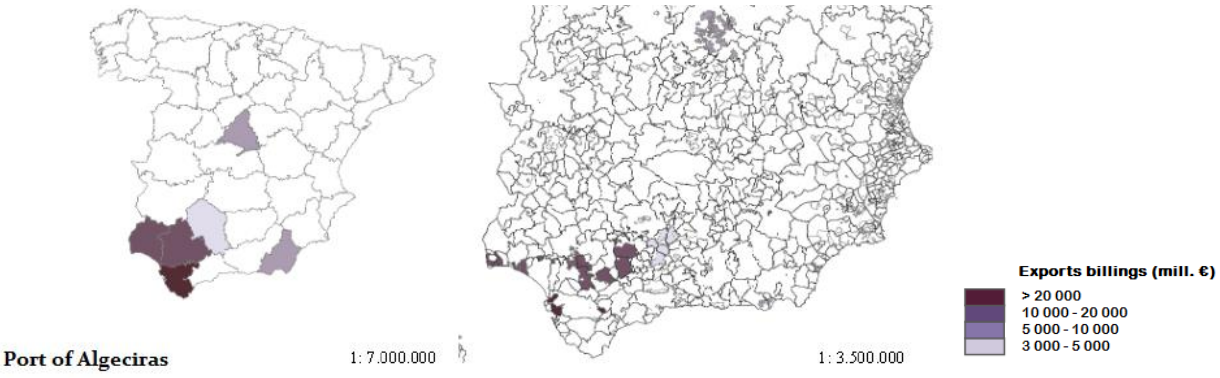



**Map 4.** Port of Valencia hinterland for container traffic. Martínez Pardo et al. 2012

2008. It is also the closest sea gateway to the Region of Madrid, another economic pole inhabited by more than 6.4 million. Company 2 even considers Valencia as the "best placed port in Spain". The pictures below were built by Martínez Pardo et al (2012) showing the firms' export billing through different ports of the peninsula towards the American market. The sample offers an approximation to the shape of the hinterland of the Port of Valencia and the overlap with its direct competitors, Barcelona and to a lesser extent for importation and exportation traffic, Algeciras.




**Map 5.** Port of Barcelona hinterland for container traffic. Martínez Pardo et al. 2012

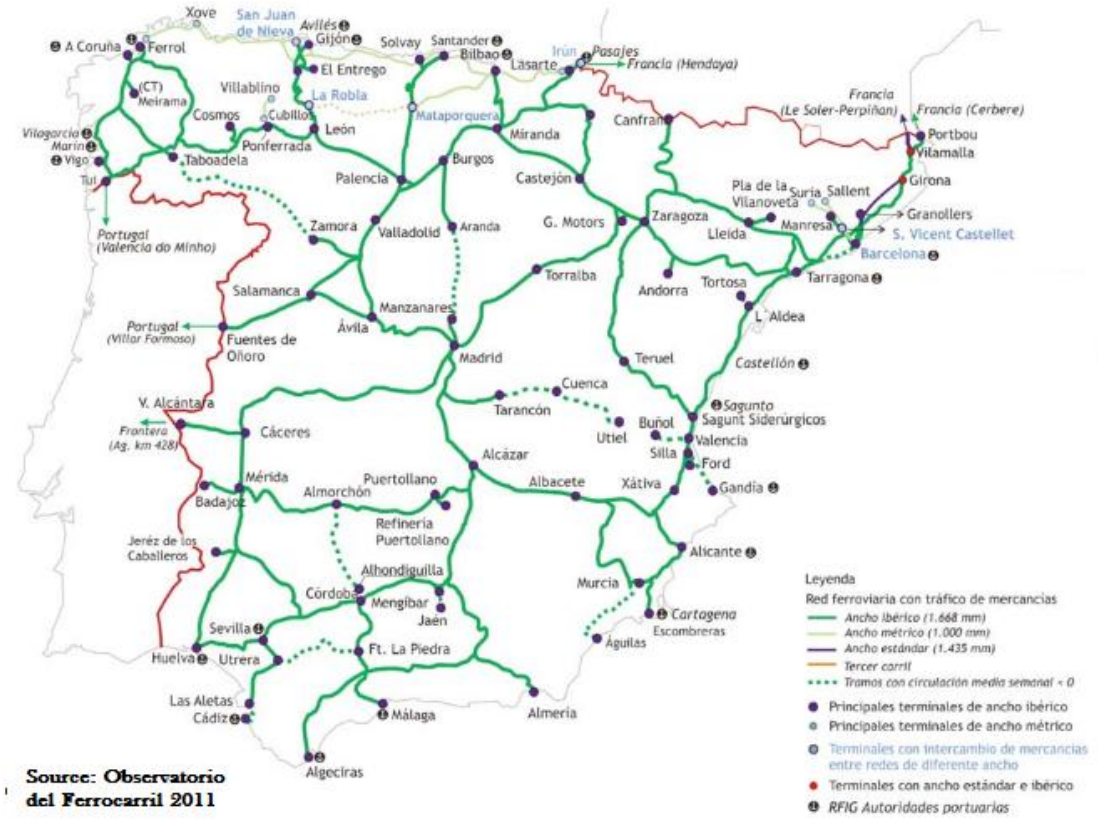



**Map 6.** Port of Algeciras hinterland for container traffic. Martínez Pardo et al. 2012

Unlike Northern European ports, Mediterranean ports have traditionally enjoyed uncontested hinterlands limited by the proximity of another important port. The increasing size of vessels drives shipping companies to call in less ports than they did before, and reload cargo into feeders covering short-sea shipping routes, rail or road to a lesser extent. Therefore, hinterlands have turned into competitive spaces subject to being reshaped (Notteboom, 2009).

As shown in the maps below, the port of Valencia is connected by road and rail to the whole peninsula, although not all connections are equally competitive. Some high capacity roads require a toll, such as the AP-7 linking France to Andalusia along the Mediterranean coast. The Iberian width of railways is different from the one in the rest of continental Europe, complicating international trade.


**Map 7.** High capacity road connections in Spain 2012. Based on elmundo.es




**Map 8.** Iberian width railway connections in Spain 2011. Observatorio del Ferrocarril

The port location and infrastructure endowment has had a direct impact on the economic behaviour of global shipping companies. Similarly to most ports, the regional economic network has chosen Valencia as a gateway to international markets, using road transport as the most competitive means for short distances – some 300-350 kilometres (company 3, *Rodrigue et al. 2013*). The existing road transport is appreciated by all interviewed shipping companies, easing regional delivery, with the only issue of the toll highway along the Mediterranean coast.

Nowadays, the liberalisation of rail freight transport has allowed for several private firms to get into the market. No formal alliance has been identified with shipping companies in a megacarrier fashion. Despite the lack of organisational integration, company 3 and the Fundación Valenciaport research centre acknowledged the competitive rail costs and high frequency of the link Valencia-Madrid (*Langa Cardona 2013*), essential components of the reliability, capacity and efficiency of route. Instead, the main cost issues in the hinterland have been related to some taxes and the cost of terminal operations at the dry port of Madrid (company 3). Notably, the Port of Valencia supplies with the 70% of containers to the dry port of Madrid, the other 30% being split between the ports of Barcelona, Bilbao and Algeciras, as asserted by the ex-director of the Fundación Valenciaport research centre, Leandro García (2006). Altogether, a hinterland encompassing

both economic regions turns Valencia into one of the most attractive ports for shipping companies scaling in the Spanish market.

Beyond this well established hinterland, there are discrepancies among sectors concerning the eventual enlargement of the hinterland. Company 3 respondent rejected the idea that the port hinterland could go beyond the Regions of Valencia and Murcia, and the centre of the peninsula. However, the PAV, Valencian Regional Government, the Valencian Business Association and some other interviewed global shipping companies acknowledge the convenience of improving rail infrastructures towards the North and the South along the Mediterranean Corridor, as well as towards Zaragoza and the Basque Country (*Europa Press 2013, Langa Cardona 2013, Levante-EMV 2014*). From the business sector, the existint rail infrastructure towards Zaragoza is qualified as "obsolete" (*Levante-EMV 2014*), and claim for public investment arguing that transport costs for companies will become more competitive.

Along the Mediterranean coast, the European width of railway extends down to Tarragona (Southern Catalonia), and then it stops until Castelló (Northern Region of Valencia) (*Levante-EMV 2014b*). At present, cargo transported by train to France from Valencia should either be transloaded or sent to Madrid first. There is also no direct rail connection to Andalusia (company 1). The Mediterranean Corridor until Valencia might be a reality in 2016, and continue down to Algeciras some years later. Despite the commitment of the Spanish Government and the EU (TEN-T) with a networked transport system, budget restrictions have driven to favour the traditional radial axes from Madrid, delaying the Mediterranean Corridor and favouring "less profitable" routes, according to the business lobby Ferrmed (El País 2014). This lobby defends the construction of a new dedicated double European width railway for freight transport along the Spanish Mediterranean coast, capable of linking Algeciras to Stockholm. The approved plan by the state Ministry of Development is a more economic third European width rail along the existing route, linking the East with the South of the country along the coast. Such an infrastructure will allow to reduce rail freight forwarding costs towards the rest of Europe, opening the door for an enlarged hinterland.

Nevertheless, some interviewed companies have questioned the economic sense of such investments, considered extremely expensive to have a reasonable return (company 3). Indeed, company 3 linked the exhausted public treasuries engagement with these large infrastructure investments, with the influence powerful construction companies exert on public decision making. Company 2 pointed out that despite rail infrastructure investment might be profitable towards central Europe, short sea shipping to a local port and road distribution was an already efficient and profitable option in a hinterland highly accessible from the sea such as the South of the peninsula, face to huge investments in more rail

infrastructures. In turn, company 3 called the attention on some underutilised existing rail routes that might be successfully exploited at a low cost.

The quasi-island configuration of the Port of Valencia's hinterland increase the number of potential competitor ports. The Spanish Ministry has established up to 46 ports as being of "general interest" and 28 port authorities, receiving substantial economic support. Nonetheless, the ports of Algeciras, Valencia and Barcelona handle more than a 75% of container traffic. This situation contrasts with Germany, where only 3 ports have the maximum level of state support: Bremerhaven, Hamburg and Wilhelmshaven (company 3). According to an interviewee, the current Spanish port supply makes little economic sense, and responds more of a political calculus of votes loss from the Ministry of Development if territories are deprived from their port independence and institutional support (company 3).

In the light of these findings, we can state that several institutional factors have consolidated Valencia as the main gate for the centre of the peninsula, which constitutes the contested hinterland among several peninsular ports. This competitive advantage for global shipping companies is built the port location, providing with the shortest distances to Madrid than from any other port. The locational advantage has been further reinforced by the institutional context and entrepreneurial attitudes in the port. First, the initial radial design of the state transport system in line with political centralism in the 1920s facilitated early connections from the port to the centre. Secondly, the early investment in port infrastructure for container traffic at the Port of Valencia has generated a path dependency that favours the trade of goods to the centre of the peninsula through Valencia, further strengthened by the traditional monopolistic or oligopolistic nature of Mediterranean hinterlands. The good infrastructure endowment grounds a solid connectivity competitive advantage, which can be enlarged if costly infrastructures are set in place. On the other hand, the independent nature of land freight forwarders vis-à-vis shipping companies has not shown any major information or bargaining transaction cost. Considering other institutional attributes, these costs may have been overcome by ICT and coordination. Finally, bargaining costs between the Ministry of Development, regional Governments and construction companies may result in decisions that do not match economic rationality, may generate more public debt and thus reduce the available money to undertake alternative investments under the global shipping companies perspective.

### 5.4.4 Taxes and tariffs

This section will elaborate on tariffs payed by clients (eg. shipping companies) in exchange of port services provided by private companies: towage, pilotage, mooring, water supply, solid and oil waste collection. It will also refer to taxes, levied by the port authority from the shipowner for staying in the port (ship tax), the transit of cargo (cargo tax) and the assistance to ships (navigation tax), as well as from terminal operators for occupying port land, handling freight, or using port infrastructure and equipment property of PAV if applicable (*Delgado 2012, 65*).

Brussels has fostered for two decades now an intense process of liberalisation shifting the role of the state from a direct economic player to promoter and guarantor of property rights and corporation freedom. Based on this political choice and ensuing regulation, Spain has modified its laws on port services to foster free competition in port provision (*Ordinary Law 48/2003*). These services are authorised (for <3 years) or concessioned (>3 years – 35 years) to private operators. The Spanish law allows ports to flexibly regulate their tariffs for the provision of services within a fixed maximum.

Concerning taxes background setting, they represent the 96% of the financial sources of Spanish port authorities. Although the PAV had a positive financial balance in 2013 with some 119.20 million €, more than Algeciras but less than Barcelona (*Cadena de Suministro 2014*), the debt has multiplied from 90 million € in 2004 to 700 million € in 2012 (*Vázquez 2014*).

These two institutional environments have influenced the current scenario of tariffs and taxes, directly impacting on global shipping companies. In relation to tariffs, both pilotage and mooring services have competitive costs in the Port of Valencia (*AT Kearny 2011*). However, the cost of towage is the highest among Western Mediterranean ports, the average cost being twice as high as the similar service provided at the Port of Barcelona (*Cadena de Suministro 2014b,* company 1). While in Barcelona the access of a second towage company brought tariffs down a 40%, the Port of Valencia only has one company led by Boluda SA providing this service feeling free to apply any tariff within the maximum limit (company 3, *Cadena de Suministro 2014b*). According to company 3, this non-competitive scenario in Valencia despite the new regulation is due to the terms of the reference of the public call for concessioning towage, adapted to the company previously providing towage services, and requiring any new candidate to make a enormous initial investment in equipment and infrastructure to effectively compete. In 2013, the Ministry for Development asked the PAV to change these terms of references (*Cadena de Suministro 2014b*). The high towage cost, together with other costs, has caused according to the specialised review Puertos y Navieras a loss of traffic from Valencia to other ports, such as Algeciras (*2014b*) or Tanger

Med (company 2). One of the interviewed shipping companies recognised to have privately renegotiated tariffs with Boluda SA (company 3).

On the other hand the Port Authority declared at its presentation of the new strategic plan 2010-2020 that they will "maintain traffic growth-oriented discounts and coefficients, even though the new regulation limits the room for improvement" (AT Kearny 2011). Paradoxically after the initial PAV statements, under the same regulatory framework, the ports of Barcelona and Algeciras has approved up to 40% discounts for rail traffic from the port face to a 15% at the Port of Valencia (*Ordinary law 22/2013*). The interviewee from company 3 claimed that the port lost a 15% rail traffic in favour of Barcelona and Algeciras. Her or his company actually diverted container traffic destined to Madrid to the Port of Algeciras, since costs were lower, influenced by rail traffic discounts, even if the rail route was longer. Nevertheless, the share of taxes in the average cost of scale for a transshipment container remains a 11.6%, so they add but are not the cornerstone of costs for global shipping companies. Company 3 respondents explains the existence of a less competitive tax than direct port competitors as a need to reduce the high debt the PAV has accumulated over the last years.

Considering these findings, we can identify how free competence has encountered some problems when facing the previous institutional model in which one single operator provided the service. This path dependence has continued for towage provision at the Port of Valencia, resulting in higher costs for shipping companies. It is not only the monetary cost that is increased, but also the transaction cost of bargaining contracts with service providers, as we can observe for company 3. On the other hand, maintaining less competitive taxes is a sovereign decision of the PAV, seemingly influenced by the need to reduce the port's financial stress. This tax structure undermines the strong existing connectivity advantage for global shipping companies.

### 5.4.5 Contracts

Contracts refer to the agreements reached in economic exchange and their enforcement. These include the purchase from shipping companies to port services providers, or the authorisations or concessions awarded by the Port Authority to port services operators for their exploitation (towage, pilotage, mooring, water supply, solid and oil waste collection, etc.) and use of port infrastructures (terminals, warehouses, offices, land).

The background setting is given by EU impulse to liberalisation and free competition enhancement in member states regulation. This had a direct impact on Spanish ports, opening to competence services previously managed by the port authorities or a single company, stimulating ports on their way towards a landlord model where private operators assume the economic exploitation of port infrastructure in exchange of a rent and different conditions depending on the type of contract (*Rodrigue 2013, Delgado 2012*). An operating license will imply private day-to-day management of port infrastructure and equipment. A lease contract requires the payment a rent for exploiting port equipment and different forms of participation in the generated benefits. Concessions are the most common type of contracts at the Port of Valencia, through which land is occupied by private operators (eg. terminals) under some conditions including the acquisition of necessary equipment, implying much higher investments and risks. Greenfield schemes are similar to concessions but they imply even the construction of port land by private operators. As an intended result from open port markets, a larger number of economic actors in a port may enhance competition and lower the price of different port services for shipping companies (company 3).

Regulation affecting the Port of Valencia has been properly adapted to EU requirements guaranteeing free competition and publicity, and no remarkable irregularities have been found by the IGAE (State Management Audit Agency) in PAV management of public contracts. Nevertheless, some services remain provided by single operators (eg. towage), attributed by company 3 to more or less adapted terms of reference to existing providers elaborated by the PAV.

The port system of terminal concessions has favoured the emergence of a dynamic market interplay among terminal operators with different impacts on shipping companies. The Port of Valencia has concessioned two public terminals to the (exclusively) terminal operators Noatum, occupying the largest container terminal (see port plan above) and handling 51% of the port container traffic (*Varea 2013*), and TCV, which opperates the second terminal in size and handles around a 10% of the total container traffic. The smaller terminal of the port handles the 39% of port's containers (*Cadena de Suministro 2014c*) becoming the most productive of the port, and is operated by the shipping company MSC as a dedicated terminal, that is only allowed and especially equipped to receive ships from the company that owns the terminal concession. In the Port of Valencia, an agreement in the shade approved the concession of a dedicated terminal to MSC (*Puertos y Navieras 2014c*) that guaranteed some traffics and price levels to other public terminals.

According to company 3, the two public terminals are below their break even point, they struggle to lower their container handling cost and keep loosing transshipment traffic in favour of other Western Mediterranean ports (Gioia Tauro, Algeciras, Tanger Med, Sines, etc.) (*Puertos y Navieras 2014c*), while the

productive MSC dedicated terminal would need more berthing space to accommodate Triple E class vessels. The recent reinterpretation of the dedicated concession from the PAV would allow MSC to handle ships from other members of the P3 (*Puertos y Navieras 2014c, Cadena de Suministro 2014c*), capturing more traffic from the already struggling public terminals. Stevedores suggest that after the parallisation of the northern enlargement, MSC would seek to expand their activities to the Noatum public terminal, thus drawing strategies for cornering its terminal competitor (*Puertos y Navieras 2014d*).

In the light of these findings, the structure of contracts provision at the Port of Valencia facilitates low enforcement transaction costs for economic operators, since the rule of law is respected. Nevertheless, some institutional features such as the path dependence on service provision by one operator may find their ways to persist within and despite the law. As a result, some port services de facto closed to competition may enhance monetary and bargaining transaction costs for shipping companies.

On the other hand, opacity of negotiations between terminal operators and the port authority does not help reducing information costs for third operators, although it may in turn favour the existing operators. High bargaining transaction costs are needed to between the PAV and terminal operators to secure their individual position in the port, since market actors are free to strategically operate pursuing their own benefit.

The existence of dedicated terminal contracts may boost integration advantage for shipping companies having dedicated terminals such as MSC and the P3 alliance to which the company belongs. Since the alliance gathers a 36,8% of global container traffic, it could mean a remarkable supply chain integration competitive advantage for the port. But the power position of MSC derived from its productivity differentials may entail the risk of reducing terminal competence, which may turn prices against shipping companies that do not operate terminals. Since concessions are awarded for decades (up to 35 years) this scenario could restrict port resilience face to the convenience of favouring other key shipping companies in the future.

### 5.4.6 Security and Safety

The safety and security section addresses the state and international regulation against illicit traffic, terrorism, as well as health and customs inspections. Ports have traditionally been hotspots of security concerns linked to

illegal traffics (eg. drugs), public health (eg. epidemic diseases) and dangerous traffics (eg. radioactive or nuclear materials). A major downturn occurred worldwide in 9/11 after terrorism became a major security issue. This event intensified safety and security regulations at EU and international level, initially led by the US. Some of the initiatives fostered by the US include the CSI (Container Security Initiative) for screening containers content with gamma ray scanners launched in 2002, or the Megaports initiative for the detection of radioactive materials through scanners, adopted in 27 world ports. The IMO (International Maritime Organisation) promoted the International Ships and Port Security code (ISPS), later transposed to EU regulation concerning security standards for vessels, ports and state agencies, and followed by other EU initiatives (eg. CIPS, ICS, etc.). Spain is a strategic security hotspot for the US since as filtered by Wikileaks, 80% of containers from Middle East to the US stop in Spain (*Alaminos 2011*). An increasingly crucial issue for security linked to the recent ICT revolution in port management is cyber-attack prevention (*Kouwenhoven 2014*).

These regulations have had a direct impact on the Port of Valencia, which has quickly adapted all major contemporary security standards (company 2, company 3). The strategic position for US container traffic stimulated US diplomats to actively promote the adoption of safety and security measures in Spanish ports of Algeciras, Valencia and Barcelona, as Wikileaks revealed (*Alaminos 2011*). The PAV has undertaken several security projects linked to the protection of physical and cybernetic critical infrastructure (CYSM project) (*Fundación Valenciaport 2013*). This has advanced the security standards gap with Northern African ports (PAV 2). Company 3 stated that the Port of Valencia "is a very secure and safe port, while keeping both enough administrative and operative flexibility, making the port attractive for shipping companies". The cost of security measures implemented in the Port of Valencia after 9/11 increased a testimonial 5-15€ per container over the whole value of the transported freight, payed through consignees by importers or exporters, and not by shipping companies (company 2). Nevertheless, security issues do not seem a major concern for shipping companies when choosing a port for their operations (*Fundación Valenciaport 2013f,* company 2).

In view of these findings, we can assert that formal international and community regulation has shaped the environment for the adoption of security and safety measures meeting upgraded international standards. US informal pressures have also facilitated the advantaged position of Spanish major ports concerning security and safety. As a result of the acquisition of new security equipment, the Port of Valencia gained an infrastructure competitive advantage in comparison to Northern African ports, preserving traffic to the US, although other competitor ports (Barcelona, Algeciras) have equated these standards. The efficiency of port customs underlined by shipping companies does provide an integration advantage of security into supply chain management.

### 5.4.7 Environmental regulation

This section addresses the regulation adopted by the port towards strengthening environmental sustainability, (EU, state, regional regulation), self-regulation as a part of PAV and companies' CSR and eco-efficiency efforts. In the background, the EU regulation has brought to the fore environmental protection as a cross-cutting activity for public and private action. Some of the most important directives include the Water Framework Directive for good quality of (coastal) waters (2000), the Birds Directive (1979) or Habitats Directive (1992) for biodiversity protection. The Natura 2000 network designs spaces of special environmental protection, among which "L'Albufera", a protected coastal and lake area just to the South of the Port of Valencia. In the framework of more restrictive environmental regulation and higher environmental awareness of citizen-consumers, environmental protection considerations are increasingly influencing companies behaviour during the last years (PAV 2). According to the interviewee 1 of the PAV, the minimisation of the product cycle carbon footprint has become a relevant issue, since it is expected that product labels will show this information to consumers in the future. As a part of the logistics chain, port activities are much concerned with this reduction for competitiveness reasons (APV 1)

The Royal Legislative Decree 2/2011, which merged previously existing fragmented port regulation, attributes to port authorities the responsibility of managing their port areas under environmental sustainability. The PAV has established environmental policies since 2000 for the port area "integrating environmental considerations into the planning processes, port zoning, management and maintenance of the public port areas, rationalising energy and natural resources consumption, preventing or reducing emissions, discharges, noise and waste generated by port activity, and analysing and assessing company activities" (*Valenciaport 3013b*). Indeed the environmental management of the PAV plays a strong leadership in encouraging the port community members to "comply with all applicable legal requirements and, where possible, to surpass legislative fulfillment" (*Valenciaport 2013b,* APV 2). In turn, private companies are free to manage their resources within the Spanish legal regulatory framework, presenting little variations among EU ports, but relevant gaps vis-à-vis Northern African ports (APV 2). Additionally, shippers should also comply with environmental regulations linked to the flag of their vessels (APV 2).

Respecting this restricted freedom of private companies, the PAV has led several initiatives to enhance environmental protection and eco-efficiency among port the port community, such as the ECOPORT (I and II) for implementing environmental management systems in enterprises (*Valenciaport 2013b*) and exchanging know-how among shipping companies, terminal operators and other

logistics operators (APV 2). These public-private joint efforts have resulted in the obtaining of advanced environmental quality certifications such as the PERS, ISO 14000 or EMAS (*Ibid.*). The PAV declared that new regulation often conditions tax discounts or other benefits to firms complying these certifications, therefore generating a competitive advantage for the Valencia port community face to less pro-active ports (APV 2).

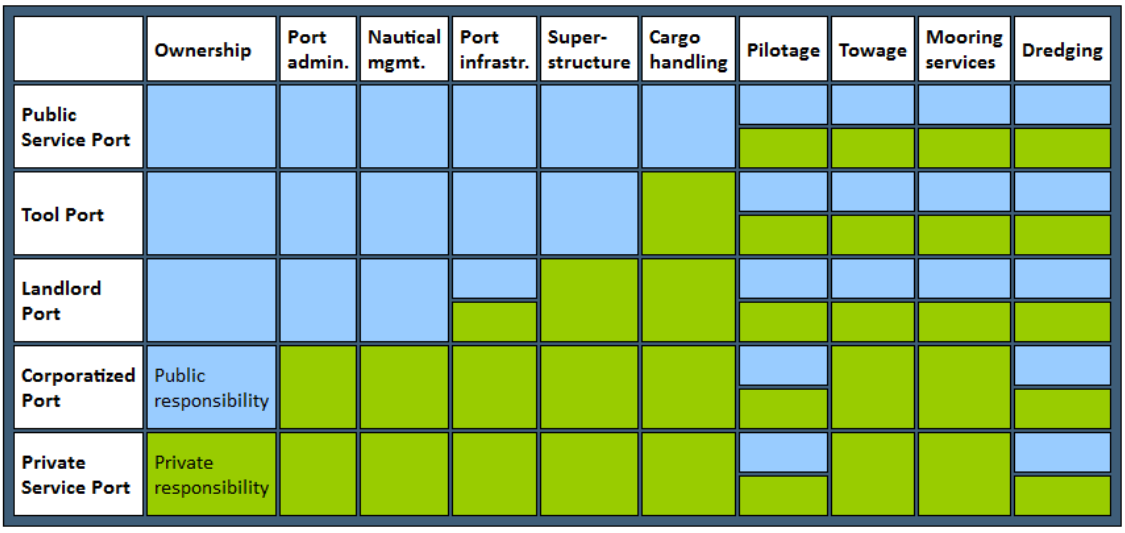
The Ministry for the Environment approved the EIA for the northern port enlargement in 2007, conditioned to the application of "preventing and correcting measures", such as the elaboration of studies on the impact on habitats, the planning of works to reduce the impact on biodiversity at L'Albufera or the provision of sand to affected beaches (*Levante-EMV 2007*). On the other hand, Greenpeace considers that the northern enlargement approved by the PAV has had "no economic justification but a high environmental cost", severely impacting beaches to the North and South, including L'Albufera, a Natura 2000 area (*Levante-EMV 2011*). The ecologists also regret that the "construction bubble burst did not triggered the end of disproportionate growth of port infrastructures", claiming that after the enlargement, "the Port of Valencia will occupy a bigger surface than the port of Hong Kong while moving ten times less containers" (*Ibid.*).

In view of these findings, we can conclude that the strong leadership of the PAV in tracking environmental regulation updates and launch of initiatives has been shaped by EU environmental regulation, but especially during the last years by market institutions, driving future suppliers' competitiveness through the reduction of their products' carbon footprint. Such a leadership strongly reduces information transaction costs and even fosters exchange among enterprises on the port, land and sea segment of the supply chain, strengthening its overall competitiveness. Also, PAV's leadership may reduce bargaining costs among port community firms for environmental policy coordination. On the other hand, the environmental impact of the northern enlargement may represent an opportunity cost, since PAV needed to allocate resources in environmental repairs (eg. sand, breakwaters) in exchange of new barely used port land.

### 5.4.8 Port Model

This element is linked to the ownership structure and planning procedures of the port, and the roles and relationships among private and public actors. The general setting is shaped by a worldwide shift from ports managed through a high direct participation of public authorities towards low public participation ports (*Delgado 2012*), that is to say, from the upper to the lower rows of the table below.

In the EU context, the liberalisation wave contributed the end of the state's direct economic actor role and the emergence of a new economic developer and individual property rights watchdog (*Ordinary Law 48/2003, Rúa Costa 2006*). Concerning the port model, this shift translated into the development of inter and intra-port competition, autonomous financial management, the normalisation of concessioning or the increase of private investment.




Source: adapted from The World Bank (2007) Port Reform Toolkit, Second Edition.

**Figure 8.** Port models. Rodrigue 2013

In the Port of Valencia, this transition began in the last third of the 20th century, and intensified in the 1990s after Spain joined the EU, influenced by the regulatory framework (*Delgado 2012*) and achieved through the coordination of port authorities with the Ministry for Development. The Port of Valencia transformed along several state laws (*Ordinary Law 33/*2010) from a public service port to the current (advanced) "landlord port" (*Delgado 2012*), aligned with EU liberalisation wave principles. Basic port services remain directly provided by the port authority: "navigation signals, anchoring and berthing space scheduling and availability, security and safety services, customs storing space availability, water and electricity supply" (*Ibid., 58*). Other port services are regulated, surveyed on the adequacy of their provision by the port authority, but managed and provided by private companies under authorisation or concession regimes, open to competence and subject to publicity. These services include dredging, mooring, towage, pilotage, terminal operations, stowage, equipment lease or shipyards (*Ibid.*).

Under the current model, the PAV is the land owner in charge of regulating land use together with other spatial planning and urbanism agencies, the strategic planning, promotion and development of infrastructures (*Esquembre 2011*). PAV Strategic Plan and Infrastructure Plan bound to the state Strategic Framework and

kept under secrecy for general public, for being considered information that may hamper inter-port competition if spread.

Beyond this, the PAV also promotes and regulates commercial activities in the port and coordinates sea-port and port-hinterland traffic (*Royal Legislative Decree 2/2011*). The PAV assumes challenges such as enhancing the investment in new equipment or infrastructure by private companies through concessioning conditions and negotiations, planning new infrastructures, facilitate a solution to the over-supply of workforce, leading ICT and other business-related developments, regulating taxes and competence framework (*Esquembre 2011*). Although no formalised fora were identified, PAV 2 acknowledged the regular cooperation with port companies for their endorsement to PAV actions. Together with open discussions in business fora linked for instance to the development of European projects (PAV 2), the specialised review *Puertos y Navieras* described also the opaque character these negotiatins might have for instance between MSC and the PAV (*2014c*).

In the light of these findings, it looks that regulation had more to do with the current shape of the port model in Valencia than market trends. Opening port services to competence has facilitated more competitive prices and quality to global shipping companies, and the possibility (in theory) of substituting poor performing operators, subject to the duration of their concessions. It also opens the door for the concentration of logistics processes in ports, reducing transaction costs and increasing economies of scale, as for MSC dedicated terminal operations Following recent market developments, shipping companies can increase scale economies by integrating shipping and terminal operations. The promotion, leadership and coordination role of the PAV may reduce information and bargaining transaction costs among business community, facilitating the achievement of highly performing win-win solutions, such as integrated ICT systems or the Quality Trademark for port marketing. On the other hand, the opacity of public-private negotiations may entail increased information costs in favour or against shipping companies that may imply both opportunities and risks.

### 5.4.9 Labour laws and organisations

This section deals with port labour management model, labour regulation and structure of labour organisations, the main labour demanding activity being cargo handling.

The framework is shaped by the new logistics scenario, characterised by a port oversupply in the Mediterranean and the concentration of shipping demanding for more productivity and flexibility while reducing costs. Productive and well-endowed Northern African or EU ports offering lower costs have become especially competitive for transshipment traffics. Worldwide, shipping, terminal operations and stowage tend to either vertically integrate in one organisation improving the efficiency of port operations (*Delgado 2012*) or horizontally integrate in inter-port specialised companies (*Wang et al. 2007*). Technology developments is also substituting labour by automatised equipment or IT platforms. On the other hand, the irregular working regime of stevedores and the importance of their function for a state economy have fostered the emergence of powerful trade unions building and preserving their labour rights (CGT interviewee).

Labour organisations, regulation and their outcomes at the port of Valencia exert a relevant direct impact on global shipping companies' behaviour. Stevedores have traditionally remained united since the beginning of the 20th century, and their strikes have produced enormous losses and scarcity in the economic network. Based on stowage dangerousness, Franco dictatorship (1939-1975) regulates in favour of the preferential entry of direct relatives in case of a worker's decease to the labour pool of the existing vertical union. The first democratic attempts to liberalise stowage in the 1980s resulted in successful labour unrest (CGT). As a result of trade union strength (*Moret 2014*) -a 100% of affiliation according to CGT interviewee- port stevedores have strongly influenced labour organisation around the public Port Stevedoring Society (SAGEP) (*Royal Legislative Decree 2/2011*). The current model has been widely endorsed among port authorities, stowage companies, consignees, shipping companies, chambers of commerce, universities, trade unions and the two main political parties with the approval of the Royal Legislative Decree 2/2011 (*Beltrán Baranda 2012*). SAGEP is the exclusive organisation allowed to provide with stevedores, recruited and trained by workers themselves (*Beltrán Baranda 2012*). Shipping unions accuse SAGEP of being endogamic (*Moret 2014*) and preventing a more flexible organisation of labour (*Ibid 2013*). In Brussels, a directive aligned with the liberalisation wave to introduce a transparent framework for port service market access failed to be approved due to divergences among member states, the opposition of European trade unions and the rejection of the Parliament (*Beltrán Baranda 2012*). More recently, the EU has questioned the Spanish port labour model as contrary to EU establishment freedom regulation, considering the SAGEP exclusivity and training regime. The EU is also keen on debating the public character of SAGEP.

As a result of this port labour model, "the Port of Valencia has the highest loading costs of the Western Mediterranean", the average container movement price being 65€, face to Barcelona's 55€, Algeciras' 45-50€, Gioia Tauro or Sines,

around 31€ (*Moret 2013,* company 3). This cost is displacing containers –especially transshipment, most reactive to price- from Valencia to other Mediterranean ports (*Moret 2013*). CGT interviewee nuances that import/export containers need more movements than transshipment containers, therefore raising the price face to pure hub ports such as Algeciras, Gioia Tauro or TangerMed. The Valencian Shipping Association points at stowage costs as the responsible for the slowdown urging SAGEP to reduce its costs a 30% by increasing productivity and reducing wages if they want to keep maritime traffic (*Ibid. Ferrer Soriano 2013*). In turn, stevedoring unions remember that terminal operators and shipping companies have doubled their benefits during the economic crisis (*Puertos y Navieras 2013*), and they attribute traffic loss to the management of Noatum, arguing that MSC stowage is organised by workers being way more productive than Noatum (CGT interviewee). The PAV intermediates among both parties calling for mutual understanding and efforts (*Moret 2013*).

These findings show how the character of stevedoring labour modelled by the market and the history of labour rights achievement has brought about the institutional shape of the port labour model. The strength of stevedores in negotiations implies high bargaining costs for shipping companies when they try to deepen into the flexibilisation of labour, afraid of labour unrest and economic paralysis. From the shipping companies' perspective, this model implies a strong supply chain integration competitive disadvantage face to other ports where stevedores are directly managed by private companies, where trade unions loose some of their strength.

### 5.4.10 Customs

The section devoted to customs elaborates on the regulation of the flow of goods in and out from the country and the administrative procedures needed to import and export goods through the Port of Valencia.

Customs became a community exclusive competence after the Treaty of Maastricht (Fundación Valenciaport 1, *Regulation (EU) 952/2013*), and the current challenges faced relate to achieve simple, quick and uniform customs procedures using ICTs towards a paperless environment, in order to increase companies' competitiveness (*Ibid*.). Security in customs doubled its importance after the terrorist attacks in New York in 9/11. The background market scenario is dominated by the increase of maritime trade on the Europe - Far East route affecting Mediterranean ports, and the promotion of Short Sea Shipping as a more sustainable means of freight transport from the EU transport policy.

Face to this scenario, the Spanish Tax Agency has introduced ICT for the management of customs procedures. The Port of Valencia has pioneered the informatisation of these procedures, together with Barcelona and soon followed by Algeciras (Fundación Valenciaport 1), such as the introduction of the electronic version of the T2L document, necessary for maritime trade exchanges between EU countries that are expected to intensify (*García de la Guía 2012*). They are perceived as having an efficient functioning by shipping companies (company 1, company 3), although some remarks emerge concerning the disconnected functioning of the Tax Agency IT platform from the PCS system (company 3), or the few minor inefficiencies remaining in quasi-customs agencies (Fundación Valenciaport 1). In any case, the impact on shipping companies is indirect since these procedures concern the importer/exporter firm.

An opening challenge identified is the integration of EU customs administrative procedures (company 1, Fundación Valenciaport 1, *Regulation (EU) 952/2013*) through the implementation of initiatives such as the centralised customs clearance, launched by the EU allowing economic operators to import/export anywhere in the EU directly from the customs agency of the member state the operator is based.

Considering the findings above, both customs EU policies and local procedures are effective enough to go unnoticed for shipping companies. Their good performance does not hamper competitiveness, although they do not really constitute any advantage, since policies are the same for all the EU, and procedures minor differences do not really represent a big issue.

### 5.4.11 Integrated competitive (dis)advantages of the Port of Valencia

Following the structure of provision approach, the previous sections have presented the findings for each of the attributes at the Port of Valencia, and analysed how institutions have generated competitive (dis)advantages shaping the economic behaviour of global shipping companies. This section will break the analytical boxes to offer a more integrated analysis of the resulting competitive (dis)advantages the Port of Valencia offers global shipping companies.

This research considered competitiveness of ports as a result of generating competitive advantages for logistics operators along the supply chains in which the port-node is embedded. Notteboom et al. identified four sources of these advantages that had been progressively incorporated to ports (*2007*). The first source is locational advantage. The Port of Valencia benefited from its privileged

geographic position vis-à-vis the centre of the peninsula reinforced by the early radial land transport model promoted by a centralised state, consolidating Valencia as an import/export gateway. Its position nearby the Mediterranean trade route also provides with a remarkable advantage for transshipment traffic over ports to the North, although Algeciras, TangerMed, Gioia Tauro or Marsaxlokk enjoy a more competitive location.

The second source of port competitiveness is infrastructure advantage. Lights include the early bet and update of the PAV for container traffic and world class infrastructure investment, attracting major international traffic that became path dependent, namely import/export. The strategic position of the Port for US traffic from Middle East boosted the early establishment of internationally required security infrastructure (scanners). However, despite the excellent equipment endowment of the dedicated MSC terminal, the public terminals' equipment is becoming obsolete and might be missing the semi-automatisation opportunity. The existing competitive disadvantage on berth productivity vis-à-vis the ports of Algeciras, TangerMed or Barcelona might further widen.

Thirdly, connectivity advantages are head by the excellent regional road connectivity and rail connection to Madrid. Two more axes (to Zaragoza-Basque Country and the Mediterranean Corridor) are expected to improve currently existing deficits. Port non-competitive taxes over rail container transport to the hinterland remains a shadow against Barcelona or Algeciras.

The last source of competitiveness, claimed by Song et al. (2008) as the most relevant nowadays, refers to supply chain integration competitive advantage. The brightest side is the existence at the Port of Valencia of a leading information interchange platform (PCS) linking all members of port community that has dramatically reduced information costs, exponentially increased productivity of logistics operations, improved coordination along the supply chain and reduced operations cost. This platform constitutes a true advantage vis-à-vis the less performing systems in direct competitor ports. The governance structure enables the PAV to play a promoter, leader and coordinator role in projects addressed to the port community that reduce their information and bargaining costs while increasing their know-how. This allows for a joint competitiveness increase of logistics operators along the supply chain in ICTs, eco-efficiency or business processes and organisation. Also, the highly performing customs and security and safety system facilitates the efficient, smooth and competitive integration of these processes in supply chains. The landlord port model has progressively opened port services to free competition, allowing for quality increase and price reduction of port services, as well as for the possibility of vertically integrating logistics processes under a single organisation, therefore reducing costs of scale, such as the MSC dedicated terminal.

However, a major hamper for supply chain integration competitive advantage is the current labour organisations and regulation. The exclusivity regime prevents stevedores from being recruited under free competition, or vertically integrating them within logistics operators. This scenario might result in more efficient coordination of activities along supply chain, but also an extremely appetising setting for companies that could take advantage of the market and EU-state adrift towards labour rights regression, if they are capable of not surpassing the limit of labour unrest. Finally, the pressures allegedly exerted by construction companies on PAV strategic positioning face to key port developments, may generate remarkable opportunity cost for addressing other port infrastructure, superstructure, port community inefficiencies and other initiatives to strengthen the integration of logistics operators along the supply chain.

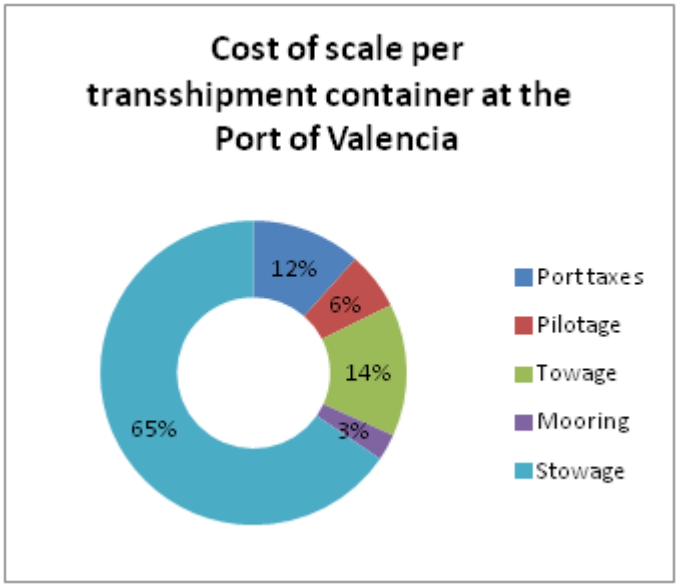



**Figure X.** Own elaboration, data from ATKearny 2011

As acknowledged by or inferred from companies (1, 2, 3) and the PAV (1, 2), the largest the impact of an institutional attribute on cost, productivity and import/ export volume, the more important it is for shaping global shipping companies' economic behaviour. Under this premise, institutions shaping labour organisations, ICTs, the superstructure and infrastructure, the connectivity with the hinterland, governance settings, the port model and contracts as well as taxes and tariffs are of remarkable importance, while environmental regulation, customs and security and safety issues revealed rather trivial. The picture above shows the initial distribution of the cost of scale of a container in transit, highlighting towage, taxes and especially stowage as having a larger room for reduction.

## 5.5 Setting the debate for strategic action

The findings and analysis chapter has offered an overview on the institutional attributes of the Port of Valencia and how they impact on the

emergence of competitive (dis)advantages shaping the economic behaviour of global shipping companies. In the light of the findings, this last section of the chapter will offer a critical reflection on the way these institutional attributes can adjust to provide global shipping companies with further competitive advantages, in an attempt to further attract international maritime traffic to the Port of Valencia, therefore unleashing the positive economic impacts on regional development announced by the OECD: GDP and employment rate growth. The discussion will be structured following the four competitive advantages, for which the existing challenges are transformed into objectives addressed through one or more suggested solutions, implying the need for institutional adjustment.

Despite the port location and connectivity advantages, the reduction of rail transport profitability from the port of Valencia and the slowdown of the hinterland economic activity stand as major challenges. In order to face them, a first proposed objective relates to the increase of land transport profitability to secure and enlarge supremacy over the existing hinterland. This might be achieved on the one hand through the reduction of rail container traffic taxes equating Algeciras and Barcelona, and on the other hand through the promotion of free competence in hinterland logistics nodes and dry ports (eg. dry port of Madrid). The second objective is linked to the increase of import/export volume from the regional economic network to secure and enlarge import/export maritime traffic. Such an objective might be fulfilled by improving the connectivity to other hinterland markets such as rail connections to Catalonia and France, Aragon and the Basque Country or Murcia and Andalusia, but also towards the smaller Western Mediterranean ports through strengthening short sea shipping. Also PAV resources could be partly transferred towards state or regional development initiatives of agencies (eg. IVACE, Madrid Regional Ministry for Economy, Ministry for Development).

Secondly, Port of Valencia's challenges on infrastructure competitive advantages are linked to the deficiencies of port endowments (eg. obsolescence or rail direct connections of some terminals). An interesting objective could be to increase productivity of terminal operations and port connection to rail and road system, reducing time and cost of logistics processes in the port node of the supply chain. A way of achieving it might be the promotion of private investment in more productive terminal superstructure endowment, especially in public container terminals. Considering the institutional structure, this could be pursued through the terms of concessions, and may also include public investment. The bet for semi-automatisation of terminals or direct rail connection endowment to all terminals might constitute a valuable port development. The second objective may adapt infrastructure to increasing size of international maritime traffic. Although possible in Noatum quays, MSC terminal has still no sufficient length. This might be smoothed by authorising the MSC dedicated terminal for building an extended quay for accommodating Maersk's Triple E vessels. However, this action should be

handled with care, since this would weaken the position of the Noatum public terminal even more, and end up absorbed by MSC, entailing quasi-monopoly risks for other global shipping companies calling to the Port of Valencia. Cost efficiency and productivity of the biggest (public) terminal is crucial for offering attractive berthing space to all shipping companies. Considering the findings, new investments are urgently required to boost this competitiveness in such a way that intra-port competence is maintained and public debt is not to go through the roof.

In relation to the supply chain integration competitive advantage, the Port of Valencia has brightly minimised information and bargaining transaction costs for supply chain firms linked to the port community. This work could be maintained and strengthened, by reinforcing the PAV's role as promoter, leader and coordinator of port community initiatives, facilitating know-how exchange and acting as a private development sting in fields such as eco-efficiency or ICT development. These transaction costs are nevertheless hampered by the current institutional allegedly influence of construction companies into the PAV's decision making processes, still rooted in Spanish political culture. An objective addressing this challenge could point at fostering transparency in public-private negotiations concerning strategic port development, allowing for more public and market oriented actions. The respect of such a rationale could indeed reduce the debt, and especially prevent eventual mismanagements of public money, such as the northern port enlargement. This could indeed enable the PAV to enlarge rail transport tax benefits, and transfer resources to other activities, such as connectivity improvement, regional development programmes, participation in more competitive port infrastructure and superstructure endowments, or different initiatives addressed to the port community firms. Transparency of APV and port community participants and negotiations may however entail several risks. First, hat transparency may entail demands for civil society to have a say on strategic decision making. Although this could enhance legitimacy of the port, and turn around to the city and hinterland it is inserted into, this may substantially increase bargaining costs for global shipping companies. Secondly, transparency may spread unpopular decision making procedures or outcomes that could result in undermining the legitimacy of the PAV.

The compliance with free competition is still challenging supply chain integration competitive advantages in the Port for some port services, such as towage or stowage. In order to address this issue, a relevant objective could be to strengthen competitive costs, quality and productivity in port services to become an attractive node in supply chains for global shipping companies. This would first imply the improvement of actual free competition in towage public tenders. Due to its complexity, stowage will be addressed further on.

Finally, the challenge of achieving further economies of scale along the supply chain requires promoting stronger integration from the port. A first

objective could be linked to maintaining the lead in efficient and burdenless integration of customs, safety and security procedures in supply chain. Secondly, to maintain the port model and concession contracts, facilitating the integration of different logistics processes through the coordination and cooperation of logistics operators (shipping companies, dedicated terminals, land freight forwarding), bearing in mind that intra-port monopolistic scenarios may pose risks for market resilience reduction.

On the other hand, a stronger integration with stowage may be more troublesome. Keeping the labour organisation and regulation institutions as they are would imply maintaining a major cost disadvantage for the Port of Valencia. One solution to address this issue would relate to opening stevedores public exclusive enterprise (SAGEP) to free competition. Although this would certainly imply a remarkable labour cost reduction for terminal operators, this might drive to strikes and enormous losses for terminal operators, shipping companies, freight forwarders and the economic network in the hinterland, since this would be perceived by stevedores as an attack against their labour rights. A possible solution to the dilemma would be to maintain labour organisation and regulation while investing in semi-automatised terminal operations, reducing number of required stevedores and thus the cost of labour. Taking advantage of the accredited leadership of the PAV, a new partnership could be established among SAGEP (stevedores), terminal operators and firms strongly linked to the port activity in the hinterland. In the context of terminal restructuring, this partnership may facilitate the reorientation of stevedores towards new economic activities in the hinterland that, according to the OECD, the increased port competitiveness should generate.

# 6. Conclusions

Face to high unemployment and GDP stagnation, competitive ports have great potential for bearing positive impacts on regional economic development over their hinterland. Anchored on Robinson's seminal paradigm (*2002*), ports are conceived as nodes in global supply chains basing their competitiveness in deriving location, infrastructure, connectivity and supply chain integration advantages for logistics operators (*Notteboom et al. 2007*). In the current global logistics scenario, port oversupply has increased competition, and global shipping companies are increasingly influential in inserting ports into international maritime routes. This qualitative case study has been conceived as a pragmatic research that aims at feeding the debate for strengthening competitiveness of the Port of Valencia. It made use of new institutional economics to grasp the economic behaviour of port stakeholders (*North, 1990*), and of the structure of provision approach (*Jacobs et al. 2007, Jacobs 2007, 2007b*) guiding an institutional analysis on how the attributes of the Port of Valencia provide global shipping companies with competitive advantages.

Similarly to Jacobs' studies on the ports of Rotterdam, Dubai, Los Angeles and Long Beach, the present research applies the structure of provision approach to identify the relevant institutional attributes and how they impact on port actors' economic behaviour. This approach has allowed the research to grasp the complexity of port institutions in a rather comprehensive fashion. While the work of Jacobs offers a wider overview of port actors, the present research is expressly focused on global shipping companies, based on their condition of key stakeholders influencing ports participation in global maritime trade. In turn, the present work adds some analytical complexity by incorporating Notteboom's four sources of port competitive advantages. Another difference with Jacobs is that while he uses the concept "global production networks", here the term "global supply chains" is preferred, for being more tuned with Robinson's seminal paradigm on ports. It is more a nuance than a proper difference, emphasising either the networked or the chain character of the interconnected logistics functions necessary for the appropriate transport of goods from the producer to the consumer.

The research revealed how the institutional attributes of the port have framed current advantages and disadvantages the Port of Valencia offers to global

shipping companies. Among the main advantages, the paper has highlighted the location and connectivity to the centre of the peninsula, the infrastructure endowment and, with some room for improvement, the superstructure. Increased rail connectivity to Aragon and the Mediterranean Corridor will upgrade port connectivity to less explored hinterlands, and the paralysed northern enlargement is expected to double container storage and berthing capacity of the port when concluded. However, doubts are raised on the strategic character and the economic rationality of some high-priced public investments, while the shadow of construction companies' private interests looms over public action. Nevertheless, the promotion, leadership and coordination role exerted by the PAV among port community actors, together with logistics operators' direct engagement has allowed for overcoming market failures, brilliantly steering win-win outcomes in fields such as eco-efficiency, ICTs or business management. As a result, an outperforming electronic data interchange system (PCS) linking all port community actors has stood as a major leap towards supply chain integration. The evolution of the port model towards concessions has also allowed for productivity and cost improvements in most cases, as well as for the integration of some logistics processes under the same management. Stevedores labour organisations and regulation constitutes however a major exception, keeping a public and exclusive character underpinned by strong trade unions and stowage regulation. This status agreed by all relevant stakeholders at the State level contributes to perpetuate the highest cost of stowage in the Western Mediterranean, implying both a significant hamper for supply chain integration and an important cost disadvantage.

Linked to these findings, three suggestions for strategic action at the Port of Valencia could be highlighted. First, reinforce the promotion, leadership and coordination role of the PAV, which has proved to be highly efficient in overcoming market failures among port logistics operators, and a pivotal actor facilitating the integration of the port into global supply chains. Secondly, increase transparency in the strategic decision-making process and inclusion of port community actors, which would make it more difficult for the PAV to deviate from public interest and port community actors' interests towards any particular group's gains that has little to do with generating port competitive advantages, environmental sustainability or social cohesion. Debt limit is not so much a menace of the new regulatory framework, but a consequence of inappropriate financial management. Finally, a possible way through the tension between stevedores labour rights on the one hand, and the shipping companies and terminal operators' cost reduction and integrated management demands on the other, could be based on maintaining labour organisation and regulation while investing in semi-automatised terminal operations, reducing the number of stevedores and thus the cost of labour. A new partnership could be established among SAGEP (stevedores), terminal operators and firms strongly linked to the port activity in the hinterland. In the context of

terminal restructuring, this partnership may facilitate the reorientation of stevedores towards new economic activities in the hinterland.

The Port of Valencia has a great potential for becoming an engine for the regional economic development of its hinterland, although some challenges for the future can be pointed out. One of these challenges is the reduction of its debt in order to keep providing a highly performing service to the port community. According to the self-financing principle of Spanish ports, income can be seized from taxes together with some less relevant sources. Considering the total costs for handling a container in the port, stowage, towage and taxes are the highest components. Stowage costs could be reduced in the medium and long term, but the strength of trade unions will make it difficult to significantly reduce the costs for global shipping companies. Towage represents however a large burden on the total cost, and there is no regulatory constrain to facilitate a drastic reduction of the cost of this tariff through the effective introduction of free competence, as it happened in the Port of Barcelona. In parallel, effective measures to prevent or, at least, make it more difficult for private interests to influence port strategic action in the shadows and for financial mismanagement to occur could be taken. Improving transparency of the de facto public-private partnership for decision making would assist managers to give priority to the port community interests as a whole over some private influential lobbies.

Another challenge for the future would be to resolve the existing conflict between dedicated MSC and public Noatum terminals so that the port could strengthen its capacity to offer competitive advantages to global shipping companies. The port logistics operators at the Port of Valencia would benefit from the modernisation of their public terminal superstructure. There is a risk that Noatum does not successfully overcome its financial struggle and the concession rights will be sold to another company. MSC could be interested in view of the congestion and limitations for accommodating Triple E vessels of its “small” size terminal. This movement would imply a reduction of intra-port competition that should be handled with care by the PAV, preventing an all eggs in one basket situation that could jeopardise port interests as a whole. Indeed, in this hypothetical scenario only the TCV public terminal could balance eventual failures or MSC quasi-monopolistic behaviour vis-à-vis global shipping companies calling to port.

A third challenge for the future concerns the loss of transshipment traffic to the benefit of other Mediterranean ports due to the high costs. The share of transshipment and import/export container traffic, accounting for approximately half and half bears implications for regional economic development. Import and export traffic is directly linked to the economic activity of the hinterland, while the territorial impact of transshipment traffic is linked to offer global maritime

connectivity to the economic network. Offering competitive conditions for the import and export traffic at the Port of Valencia is therefore of utmost importance for the development of the regional economic network in the hinterland. The dependence of this traffic on the economic dynamism turns the PAV into a relevant stakeholder for contributing to regional development policies. On the other hand, the fact that transshipment traffic is also the most sensitive to costs explains the traffic loss at the Port of Valencia to the benefit of other Mediterranean container ports. According to the port formal-institutional structure within the state, there are 3 port authorities in the Region of Valencia and 5 general interest ports. Merging ports under a single maritime façade management board could allow for generating costs of scale in port management and optimisation of port specialisation. Specifically, the Port of Alacant, located some 150 kilometres south of Valencia offers a better location vis-à-vis the Mediterranean maritime trade route and lower stowage costs than the Port of Valencia. Some of the global shipping companies that called for port in Valencia but due to the high costs decided to move to more profitable locations might be invited to shift traffic to the southern port of Alacant, while keeping the taxes paid for transshipment traffic within the hypothetical integrated maritime façade structure thus contributing to reduce the debt of the Port of Valencia. The import/export traffic could be further boosted at the Valencia terminals, taking advantage of the existing good connectivity. Nevertheless, this alternative may imply some strong initial investments to improve Alacant container terminal, and conflicts with other activities such as coastal tourism may arise.

The research findings, subsequent analysis and critical reflections are subject to some limitations. First, the scaled down focus on regional economic development steers the discussion to the economic field, largely overlooking the social, environmental or cultural implications of port competitiveness. Secondly, the width and complexity of factors relevant for port competitiveness in the land, port and maritime side, as well as the breadth of port functions, actors and roles needed also to be scaled down in order to make the research manageable. The adopted focus on global shipping companies economic behaviour vis-à-vis ports is well underpinned by theory, but this does not make less true that other supply chain actors and dynamics (eg. the evolution of importations and exportations of the economic network in a port hinterland) continue to play a major role that is not addressed in this research. Thirdly, new new institutional perspective is a convenient approach for explaining how market actors perform, but neoclassical economic rationale or transaction cost perspective do not constitute an insightful tool to understand public or semi-public behaviour or how it affects market actors in terms of costs of opportunity (eg. financial mismanagement at the PAV may have large costs of opportunity for global shipping companies and other actors along the supply chain). In the fourth place, the pragmatic character of the research does not greatly contribute to theoretical scientific knowledge. The research stems from the

societal relevance, and is rather focused on combining existing scientific knowledge with grass-root knowledge to portray challenges and ground a discussion on solutions. Finally, the major limitation of this work is related to the suffered limitations during the data collection period, such as the secrecy kept over highly relevant internal PAV documents, (eg. the Port of Valencia Strategic Plan 2010-2020) or the difficulties in interviewing global shipping companies. This led to a reduced number of interviews and some important documents missing. However, this problem was partly overcome through a more intense collection of primary data from different sources, such as PAV internal documents or public documents.

Despite the pragmatic character of the research, it makes some interesting contributions to the field of port studies. First of all, the original application of Robinson's paradigm conceiving ports as nodes in global supply chain, the new institutional economics perspective and the structure of provision analysis to the Port of Valencia provides with a fresh look on the Port of Valencia in relation to the existing scientific knowledge on the issue, largely focused on efficiency. In turn, it incorporates to the structure of provision applied to ports literature a novel port case. Furthermore, this research goes beyond the rather descriptive character of the existing work on the role of ports in supply chains, as acknowledged by Notteboom et al (*2013, 646*), incorporating an analytical perspective through the structure of provision approach. In relation to the research gap identified by Talley (2013), this analytical perspective offers a useful insight on how global shipping companies and ports interact to constitute global supply chains.

Further research could focus on the application of the structure of provision approach to other global ports, analysing how local institutions influence port competitiveness. Building on the present research on the Port of Valencia, as well as the work undertaken by Jacobs (*2007, 2007b*) and Jacobs et al. (*2007*) on the ports of Rotterdam, Dubai, Los Angeles and Long Beach, other research tracks open around the shifts that ports are globally experiencing, and whether and how these shifts have increased port competitiveness: Has the evolution towards more private forms of port management increased the competitiveness of ports? How? Has the rise of dedicated terminals increased the competitiveness of ports? How? From a different perspective, while this paper addresses how ports can derive competitive advantages to attract global shipping companies, it does not analyse how port competitiveness is translated into regional economic development, but takes it as an automatic mechanism. An interesting field for further research will be to focus on what are the economic impacts of the Port of Valencia over its hinterland and how this impact occurs.

All in all, the Port of Valencia is a global port capable of connecting a hinterland severely affected by unemployment with global markets, and thus

facilitating the specialisation of the inlaying business network through the provision of competitive costs for exportation and importation of goods. The institutional characteristics of the Port of Valencia have shaped important competitive advantages for global shipping companies, such as a privileged connectivity to the centre of the peninsula, an outperforming electronic information interchange system among all members of the port community playing a critical role for the integration of logistics operators along the supply chain, and a port authority promoting coordinating and leading valuable initiatives for and with the members of the port community, raising competitiveness of operators along supply chain beyond the port itself. On the other hand, the port institutions have also shaped some competitive disadvantages for global shipping companies, namely the elevated cost of stowage, towage services and some taxes. Some trains to the future might have been largely overlooked, such as semi-automatisation of terminals. These findings, analysis and reflections can stimulate the debate on port competitiveness among the members of the port community and, encourage port managers to seek for new ways forward, strengthening the Port of Valencia as a true engine for the regional economic development of its hinterland.

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# 8. Annexes

Annex 1: Case study protocol

Annex 2: Summary of the structure of provision analysis of the Port of Valencia

## Annex 1: Case study protocol

# Case Study Protocol

1. Presentation of the case study project
2. General sources of information
3. Credentials
4. Presentation letter model
5. Interviews planning
6. List of relevant enterprises
7. Contact list
8. Information sought
9. Questions for the interviews

1. **Presentation of the case study project**

April 16th, 2014

De acuerdo con recientes investigaciones portuarias, la integración de los puertos en cadenas globales de suministro condiciona de forma creciente la competitividad de los grandes puertos. Desde una perspectiva institucionalista, las normas formales e informales dependientes del legado histórico de un lugar definen, junto con las clásicas variables económicas, el comportamiento de los actores del puerto. Adoptando este enfoque, la investigación analizará los elementos físicos (terminales, conexiones por carretera, ferrocarril, grúas, TICs, características de los muelles, etc.) aspectos institucionales (tarifas, contratos, seguridad, regulación medioambiental, derechos laborales, procedimientos aduaneros, estructuras de propiedad, planificación) y gobernanza (estructura de toma de decisiones, participación público-privada) del puerto de Valencia, para analizar las consecuencias de esta estructura institucional sobre el desarrollo de conexiones entre el puerto y las compañías logísticas globales. El resultado será la identificación de los factores institucionales que facilitan y que dificultan esta integración puerto – cadenas globales de suministro. El proyecto concluirá con una discusión para arrojar luz y alimentar el debate sobre los factores institucionales a potenciar o a modificar para cumplir con éxito la actual visión estratégica del puerto en lo relativo a su inserción en las cadenas globales de suministro.

2. **General sources of information:**

a) Public documents: mass newspapers, specialised reviews, port newsletters, formal studies of the Port of Valencia
b) Internal documents: internal working documents
c) Semi-structured interviews
d) Direct observation: guided tour to the Port of Valencia, interaction with researchers and port workers at the Fundación Valenciaport documentation centre.

## 3. **Credentials**

valenciaport
Autoridad Portuaria de Valencia

planet europe

30 de abril de 2014

Estimado/a miembro de la comunidad portuaria:

Le presento a Mario Sánchez Brox, estudiante del posgrado PLANET Europe sobre Desarrollo Económico Regional Europeo, impartido en las universidades Radboud de Nijmegen (Países Bajos) y Blekinge Tekniska Högskola (Suecia). Mario lleva a cabo una investigación sobre la competitividad del Puerto de Valencia a través de su integración en las cadenas logísticas globales, bajo la supervisión del profesor Arnoud Lagendijk.

El proyecto de investigación está orientado a alimentar el debate sobre los elementos institucionales del Puerto de Valencia que facilitan y dificultan la integración de los operadores logísticos globales. La discusión aportaría nuevas reflexiones para la acción estratégica de Valenciaport a fin de ofrecer un entorno más atractivo para las compañías logísticas españolas e internacionales.

Le invitamos amablemente a aportar su experiencia a este proyecto de investigación, contribuyendo así a la generación de un valioso conocimiento para la comunidad portuaria.

Quisiera expresar mi gratitud por su apoyo

Cordialmente,

**Juan Antonio Delgado**

Subdirector General de Planificación Estratégica y Planificación

Valenciaport

valenciaport
Autoridad Portuaria de Valencia

planet europe

April 30th, 2014

To whom it may concern:

This letter is to introduce Mr. Mario Sánchez Brox, a researcher of the PLANET Europe master programme, taught at the Radboud University of Nijmegen (Netherlands) and the Blekinge Institute of Technology (Sweden). He is engaged in a thesis project dealing with the competitiveness of the Port of Valencia through its integration in global supply chains, under the supervision of professor Arnoud Lagendijk.

Ultimately, the research project is called to feed the debate on the institutional elements helping and hampering the integration of global logistics operators in the Port of Valencia. This discussion may add new reflections to Valenciaport strategic action as a means to offering a more attractive environment for national and international logistics operators.

We kindly invite you to pool your experience to this research project, thereby contributing to the generation of valuable knowledge about our port community.

I wish to express my gratitude for your support.

Sincerely,

**Juan Antonio Delgado**

Strategic Planning and Transformation Deputy General Manager

Valenciaport

4. **Cover letter model:**

Estimado director comercial de X:

Le escribo para solicitarle amablemente una entrevista de investigación telefónica o presencial de unos 30 minutos en los próximos días.

Mi nombre es Mario Sánchez Brox, y la investigación forma parte de la tesis del posgrado *Planet Europe* sobre desarrollo económico regional, impartido conjuntamente en la Radboud Universiteit de Nijmegen (Países Bajos) y la Blekinge Tekniska Högskola (Suecia). El proyecto de tesis, dirigido por el profesor Arnoud Lagendijk entre febrero y mayo, tiene como objetivo incrementar la competitividad del Puerto de Valencia a través de una integración más intensa entre el puerto y las cadenas globales de suministro. Esta integración está crecientemente influenciada por las decisiones de compañías navieras globales sobre operar en uno u otro puerto. Por este motivo, el testimonio de X es de excepcional relevancia para el éxito de esta investigación.

Me gustaría hacerle algunas preguntas relacionadas con la influencia de algunos de los atributos físicos, institucionales o de gobernanza del Puerto de Valencia en la decisión estratégica de X de escoger este puerto como centro de operaciones. El objetivo es descubrir algunos de los aspectos más atractivos y los más problemáticos del Puerto de Valencia para las principales compañías navieras, y reflexionar sobre cuáles son las fronteras de mejora de la competitividad del puerto y qué tipo de acciones serían recibidas con gran interés por compañías como X.

El resultado de la investigación será presentado a la Subdirección General de Planificación Estratégica y Transformación de Valenciaport. Su participación puede ser por tanto una oportunidad para trasladar asuntos y alimentar la discusión sobre soluciones estratégicas.

Le invito a proponer una fecha y hora para la entrevista como mejor convenga en su agenda. Para mayor información, le facilitaré con dos días de antelación las preguntas concretas que me gustaría abordar. Podrá encontrar los compromisos éticos de esta investigación más abajo. Le agradezco su atenta lectura y quedo a la espera de su respuesta. Feliz jornada.

Un saludo,

Mario Sánchez Brox

Con fines exclusivamente científicos, me gustaría solicitar su consentimiento para grabar la entrevista telefónica (no es imprescindible, pero puede eliminar malentendidos en su testimonio). Esta grabación será confidencial entre usted y yo, y en su caso el director de tesis. Su voluntad explícita de mantener el anonimato, de no incluir en la investigación cualquier información sensible proporcionada será rigurosamente respetada. Aun de manera implícita, cualquier información que pudiese causar perjuicio manifiesto al entrevistado o su organización no será utilizada.

## 5. Interviews planning

**Rationale for undertaking interviews:**

Thirteen items can be identified through the "structure of provision" approach, that could be grouped in 11 tags keeping the overall coherence of the concept.

In order to understand how the structure of provision of the Port of Valencia facilitates or constrains the embeddedness of global supply chain logistic operators, it is important to gather information from global supply chain logistic operators themselves on each item of the structure of provision. Commercial directors in the office responsible for the Port of Valencia will be targeted. Anonimity will be respected if requested. According to the literature, global logistic operators, especially shipping companies are increasingly influential in a port's integration in global supply chains. These companies will therefore be the main target of the research.

| | Infra & superstructure | IT applications | Hinterland/ Foreland conn. | Tariffs | Contracts | Security & Safety | Environmental regulation | Planning & Ownership | Labour laws & organisations | Customs procedures | Governance |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Company 1 | ■ | ■ | ■ | | | | | | | | |
| Company 2 | ■ | ■ | ■ | | | | | | | | |
| Company 3 | ■ | ■ | ■ | | | | | | | | |
| Company 4 | | | | ■ | ■ | ■ | | | | | |
| Company 5 | | | | ■ | ■ | ■ | | | | | |
| Company 6 | | | | ■ | ■ | ■ | | | | | |
| Company 7 | | | | | | | ■ | | ■ | | ■ |
| Company 8 | | | | | | | ■ | ■ | | ■ | |
| Company 9 | | | | | | | ■ | ■ | | ■ | |
| Company 10 | | | | | | | | | ■ | ■ | ■ |
| Company 11 | | | | | | | | ■ | ■ | | ■ |
| Port Authority | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Trade Union | | | | | | | | | ■ | | |

## Conducted interviews

| | Infra & superstructure | IT applications | Hinterland/ Foreland conn. | Tariffs | Contracts | Security & Safety | Environmental regulation | Port model | Labour laws & organisations | Customs procedures | Governance |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NYK Line 14/5/2014 | | | | | | | | | | | |
| ZIM 15/5/2014 | | | | | | | | | | | |
| Hanjin 22/5/2014 | | | | | | | | | | | |
| Hanjin 22/5/2014 | | | | | | | | | | | |
| Company 5 | | | | | | | | | | | |
| Company 6 | | | | | | | | | | | |
| Company 7 | | | | | | | | | | | |
| Company 8 | | | | | | | | | | | |
| Company 9 | | | | | | | | | | | |
| Company 10 | | | | | | | | | | | |
| Company 11 | | | | | | | | | | | |
| Port Authority 30/4/2014 | | | | | | | | | | | |
| Port Authority 30/5/2014 | | | | | | | | | | | |
| CGT (trade union) 23/5/2014 | | | | | | | | | | | |
| Fundación Valenciaport 23/5/2014 | | | | | | | | | | | |

## 6. List of relevant enterprises

| Global Shipping Companies | | | |
|---|---|---|---|
| | **Market share** | **World ranking** | **Port strategy** |
| **APM-Maersk** | 14.4% | 1 | Loyalty-building |
| **MSC** | 13.2% | 2 | Loyalty-building |
| **CMA-CGM** | 8.2% | 3 | Loyalty-building |
| **Evergreen** | 4.3% | 4 | Loyalty-building |
| **Cosco** | 4.3% | 5 | Loyalty-building |
| **APL** | 3.4% | 7 | Monitoring |
| **Hanjin Shipping** | 3,4% | 8 | Loyalty-building |
| **China Shipping Container Lines** | 3.3% | 9 | Loyalty-building |
| **OOCL** | 2.7% | 11 | Attraction |
| **Hamburg Süd Group** | 2.5% | 12 | |
| **NYK Line** | 2.4% | 13 | Monitoring |
| **Yang Ming** | 2.4% | 14 | Loyalty-building |
| **K Line** | 2.4% | 15 | Loyalty-building |
| **ZIM** | 1.9% | 17 | Attraction |
| **PIL** | 1.8% | 18 | Monitoring |
| **UASC** | 1.6% | 16 | |
| **Wan Hai Lines** | 0.9% | 21 | Monitoring |
| **Grimaldi Group** | 0.2% | 30 | |

## 7. Contact list

| Company | Contact details | Comments | First contact |
|---|---|---|---|
| **APM-Maersk** | iker.echave@maersk.com (Manager departamento de exportación Maersk Madrid) | Preguntar qué contacto puede ser de utilidad<br><br>Contactos mail: 2 | Credencial + Carta + correo con contacto |
| **MSC** | msc.vlc@mscspain.com | Escribir la propuesta para que me reenvíe a la persona responsable | Credencial + Carta + Preguntas |
| **CMA-CGM** | ivl.jhickin@cma-cgm.com | Correo ivl.probablemente acabe en la basura. Ellos se dedican a vender contenedores. | NO |
| **Evergreen** | sup@evergreen-shipping.es<br><br>Daniela Casanova (secretaria de dirección) | Escribir la propuesta para que me reenvíe a la persona responsable<br><br>Contactos mail: 2 | Credencial + Carta + correo con contacto |
| **Cosco** | boitjos@coscoiberia.com<br><br>José Boix | Escribir la propuesta para que me reenvíe a la persona responsable<br><br>Contactos mail: 2 | Credencial + Carta + correo con contacto |
| **APL** | DOES NOT OPERATE IN VALENCIA | | |
| **Hanjin Shipping** | gimeno@hanjinspain.com<br>96 393 98 10<br>(llamar 12h15)<br>Nuria Gimeno<br>(Departamento RRHH) | Enviar propuesta de entrevista (preguntas específicas).<br>Ella se lo comunica al director de operaciones la semana que viene, porque está de vacaciones esta semana (5-9 mayo).<br>Persona muy ocupada, poca disponibilidad.<br>Llamarla para | Credencial + Carta + Preguntas |

| | | | |
|---|---|---|---|
| | | conocer el resultado de su propuesta. Incluir en el email de la propuesta de entrevista invitación a contactar conmigo a mi móvil o correo.<br><br>Contactos mail: 2 | |
| **China Shipping Container Lines** | Me llamarán al móvil / escribirán correo | Se toma nota de mi nombre, móvil, correo y estudiante de master. Me llamarán con respuesta sobre su interés en la participación | |
| **OOCL** | lucia.perez@oocl.com<br>Lucía Pérez de la Torre | Entrevista sería en Barcelona!<br>Enviar resumé del proyecto y contenido de la entrevista | Credencial + Carta + Preguntas |
| **Hamburg Süd Group** | Política de la compañía: prohibición estricta de participar en este tipo de procesos | (Primera llamada a las oficinas centrales de España en Barcelona: me reenvían a la oficina de Valencia) | NO |
| **NYK Line** | masantamaria@combalia.com<br><br>Miguel Ángel Santamaría | Pasarle invitación para entrevista. Parece el responsable directo. Parece dispuesto. | Credencial + Carta |
| **Yang Ming** | | | |
| **K Line** | manuel.arenas.l@klines.es | Pasarle invitación para entrevista, él la reenviará a sus jefes. Se asumen como pequeño operador con un impacto pequeño en la investigación | Credencial + Carta |
| **ZIM** | m.fito@vlc.perezycia.com<br>96-367-6800<br>Extensión 220<br>No nombre (departamento comercial) | Llamarle el miércoles por la tarde para cerrar cita jueves por la tarde. Se dedica a feeder. Me informa de que el puerto de valencia está en un | Preguntas |

| | | | |
|---|---|---|---|
| | | 60 o 70% operado por una compañía: MSC<br><br>2º contacto: me indica que para los bloques "Tasas y tarifas" y "Contratos" es mejor contactar con un armador. | |
| **PIL** | DOES NOT OPERATE IN VALENCIA | | |
| **UASC** | DOES NOT OPERATE IN VALENCIA | | |

No reply after several contacts

Negative responses

Contacted and interviewed

Not contacted

# 8. Information sought

(April 13th, 2014)

**Reminder of the research questions:**

How can the Port of Valencia strengthen its competitiveness?

- How does the structure of provision of the Port of Valencia facilitate or constrain the embeddedness of key global supply chain logistic operators?
- What elements of the structure of provision constitute key enablers and key handicaps for achieving the Port's vision regarding its relation vis-à-vis global supply chains?
- How could the Port of Valencia address its structure of provision to further strengthen its competitive position in the emerging global logistics scenario?

(April 13th, 2014)

**Information sought:**

Are all the elements of the structure of provision relevant for the embeddedness of global shipping companies in the Port of Valencia?

How do different aspects of each of the SoP elements enable global shipping companies to become embedded in the port?

How do different aspects of each of the SoP elements hamper global shipping companies to become embedded in the port?

How crucial is each of the identified enablers and hampers in relation to each other?

## 9. Questions for the interviews

## A) Infrastructure and Superstructure

*Physical infrastructure*, including superstructure i.e. berthing and docking space, wharf and terminal space, quay walls plus all the equipment for handling cargoes (cranes, chassis etc) and ship services (such as tugs, pilotage, fresh water, bunkers, waste disposal), and the inland transport system (e.g. waterways, road and rail).

1. Some of the (SoP element) include a, b and c. Do (SoP element x) matter in (the company's) strategic decision of operating in the Port of Valencia?

   *Eg. The infrastructure and superstructure comprise elements such as berthing and docking space, wharf and terminal space, all the equipment for handling cargoes (cranes, chassis…), ship services (tugs, pilotage, fresh water, waste disposal, etc.) and the inland transport connections from/to the port (road and rail).*

   1. *Are all competitive infrastructure and superstructure elements in place in the Port of Valencia or is there any important element missing? (eg. Last generation container scanners)*

   2. *Considering the existing infrastructure, could you please briefly refer to the quality for your company of the inner harbor, berthing, docking and wharfing space in the Port of Valencia?*

   3. *Considering the existing superstructure, could you please briefly refer to the quality for your company (cost, efficiency, service) of ship services (tugs, pilotage, fresh water, waste disposal, etc.) cargo handling operations and inland transport system in the Port of Valencia?*

   4. *In your opinion, how could these lower quality elements be improved in the Port of Valencia?*

   5. *Could you grade the attractiveness for your company of the infrastructure and superstructure of the Port of Valencia from 0 to 10, 0 being not attractive at all, 10 being extremely attractive?*

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|

## B) ICTs

*The IT elements of a Port comprises … Las Tecnologías de Información y Comunicación del Puerto de Valencia hacen referencia entre otros a la informatización e intercambio de datos o a la sustitución de documentación en formato papel por formato electrónico.*

1. *Are all competitive IT services in place in the Port of Valencia or is there any important element missing? (eg. Last generation container scanners)*

2. *Considering the existing IT services, could you please identify high quality and poorer quality services in the Port of Valencia?*

3. *In your opinion, how could these lower quality IT services be improved in the Port of Valencia?*

4. *Could you grade the attractiveness for your company of the IT services of the Port of Valencia from 0 to 10, 0 being not attractive at all, 10 being extremely attractive?*

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

## C) Hinterland connectivity:

*The hinterland connectivity refer to the possibility to transport cargo from the port to the final consumer, the existence of logistic areas, road and rail connections to final market and intermodality.*

1. *Are all competitive hinterland connections in place in the Port of Valencia or is there any important element missing?*

2. *Considering the existing hinterland connections, could you please briefly refer to the quality for your company of the in the Port of Valencia?*

3. *In your opinion, how could these deficient hinterland connectivity aspects be improved?*

4. *Could you grade the attractiveness of the Port of Valencia's hinterland connectivity from 0 to 10, 0 being not attractive at all, and 10 being extremely attractive?*

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|

## D) Tariffs:

*Taxes and Tariffs of the Port of Valencia include the cost of port services (tugboats, mooring and unmooring, water supply, solid and oil waste collection) and charges for using port infrastructure (ship tax, navigation assistance tax, cargo tax). They are not related to stowage costs.*

1. *Has the Port of Valencia competitive taxes and tariffs or are there any non-competitive charges in relation to other Mediterranean ports? (eg. Tugboats)*

2. *What taxes or tariffs would be convenient to modify?*

3. *Could you grade the attractiveness for your company of the taxes and tariffs of the Port of Valencia from 0 to 10, 0 being not attractive at all, 10 being extremely attractive?*

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|

## E) Contracts:

*Los contratos del Puerto de Valencia hacen referencia a los acuerdos de explotación de los servicios (remolcadores, pilotaje, amarradores, etc.) e infraestructuras (terminales) del puerto por compañías privadas.*

1. *Si conoce el procedimiento, ¿podría explicar brevemente cómo se llevan a cabo los contratos de explotación de servicios e infraestructuras del puerto de Valencia?*

2. *¿Considera que la negociación de contratos en el puerto de Valencia se lleva a cabo de un modo transparente y competitivo o existe un grado importante de opacidad?*

3. *En su opinión, ¿cómo podría mejorarse la calidad del modelo de contratación?*

4. *En un gradiente de 1 a 10, siendo 1 nada atractivo y 10 muy atractivo para su compañía, ¿podría situar el modelo de contratación del puerto de Valencia?*

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

## F) Security and Safety:

*La seguridad del puerto de Valencia hace referencia a las normativas nacionales e internacionales contra el tráfico ilícito, la lucha contra el terrorismo, así como a las inspecciones sanitarias y aduaneras que se llevan a cabo.*

1. *¿Considera que el puerto de Valencia aplica todos tratados y medidas de seguridad para ser competitivo a nivel global o existe algún exceso de seguridad o vacío legal importante en algunos ámbitos?*

2. *¿Considera que el puerto de Valencia dispone de unos servicios de inspección equilibrados entre las exigencias de seguridad actual y la eficiencia en tiempo y costes del servicio?*

3. *En su opinión, ¿cómo podría mejorarse la seguridad del puerto?*

4. *En un gradiente de 1 a 10, siendo 1 nada atractivo y 10 muy atractivo para su compañía, ¿podría situar la seguridad del puerto de Valencia?*

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

## G) Environmental regulation:

***Environmental regulation*** *refer to the adoption by the port of provisions towards strengthening environmental sustainability, ( EU directives: Birds and Habitats, Environmental Impact Assessment, port tax discounts for sustainable behavior of shipping companies or terminal operators, etc.). Also an increasing environmental self-regulation as a part of companies' and PAV's CSR and efficiency efforts can be observed, resulting in the integration of Environmental Management Systems in different port actors (Ecoport II) or the display of different pollutant agents measurement and collection mechanisms.*

*(eg. Construction of sewage collectors, participation in the ecoports II project network for sharing knowledge, experiences, guidelines, and environmental commitments towards the adoption by companies of environmental management systems, upcoming online tool for controlling and monitoring Environmental Management Systems).*

1. *Has the adoption of environmental regulation at the Port of Valencia affected its attractiveness for your company as a place to operate? How?*

2. *Has investment at the Port of Valencia in a more sustainable environmental management affected its attractiveness for your company as a place to operate? How?*

3. *Has the environmental regulation applied and political conflict (eg. Opposition parties, technical reports, Greenpeace) affecting the Northern enlargement of the port had any negative impacts on the Port of Valencia attractiveness for your company?*

4. *Could you grade the attractiveness for your company of the environmental regulation and investments of the Port of Valencia from 0 to 10, 0 being not attractive at all, 10 being extremely attractive?*

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|

## H) Planning and ownership:

*The port model relates to the ownership structure and planning procedures of the Port of Valencia. Since the 1990s, EU and Spanish regulation have boosted the involvement of private investments in infrastructure and superstructure development, keeping the public*

*leadership from the Valencia Port Authority (ie. from service port to landlord port). Planning of land use and port development remains formally led by the public sector.*

1. *What have been the effects of this shift towards a more active role of private investment in port development for shipping companies operating in the Port of Valencia?*

2. *After this shift in the port model, is the port of Valencia a more attractive place to operate for global shipping companies? Why?*

3. *To what extent are shipping companies involved in planning of land use and port development?*

4. *From the shipping company perspective, how could the ownership structure and planning be improved in the Port of Valencia?*

5. *Could you please grade the attractiveness of the port model and planning procedures of the Port of Valencia for your company from 0 to 10, 0 being not attractive at all, 10 being extremely attractive?*

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|

## I) Labour Laws and organisation:

*Labour laws and organisation:*

*This chapter refers to the labour management model of port services, especially to cargo handling. It has been published the existence of a conflict between stevedores and shipping companies, terminal operators, EU regulation and the VPA itself, in which labour rights and scale cost reduction are often at odds.*

1. *Has the Port of Valencia a competitive labour model for shipping companies face to other Mediterranean ports?*
2. *Bearing in mind the port's labour model characteristics, could you please identify the most appreciated elements and the worst appreciated for shipping companies? Could you briefly explain why?*

3. *In your opinion, how could the labour model be improved in order to make it more competitive?*
4. *Could you grade the attractiveness for your company of the labour model of the Port of Valencia from 0 to 10, 0 being not attractive at all, 10 being extremely attractive?*

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *1* | *2* | *3* | *4* | *5* | *6* | *7* | *8* | *9* | *10* |

## J) Customs

*Customs refer to the regulation of the flow of goods in and out from the country and the administrative procedures needed to import and export goods through the Port of Valencia*

1. *Does the existing regulation on the flow of goods in and out from the country make trade through the Port of Valencia any more difficult than through other ports?*

2. *Does the Port of Valencia count with high quality customs administrative procedures (speedy, easy, light, secure, networked, etc.)?*

3. *Could you please point at some of the weaknesses on customs regulation and administration procedures making the Port of Valencia less competitive for trading goods?*

4. *In your opinion, how could these weaknesses be improved in the Port of Valencia?*

5. *Could you grade the attractiveness for your company of the customs regulation and administrative procedures at the Port of Valencia from 0 to 10, 0 being not attractive at all, 10 being extremely attractive?*

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *1* | *2* | *3* | *4* | *5* | *6* | *7* | *8* | *9* | *10* |

## K) Governance

*La gobernanza se refiere al sistema de toma de decisiones en el Puerto de Valencia, a los diferentes niveles en los que se toman decisiones importantes para la competitividad del puerto (UE, Estado, Comunidad Autónoma, Gobierno Local, Consejo de Administración) y a los diferentes actores que participan en esa toma de decisiones (autoridades y entes públicos, empresas privadas, actores de la sociedad civil). Estas decisiones están ligadas al desarrollo del puerto: infraestructuras, TICs, apoyo a conexiones con el hinterland, tasas y tarifas, negociación de contratos, seguridad, medio ambiente o derechos laborales.*

1. *¿Qué mecanismos existen en el Puerto de Valencia para incluir a actores económicos (empresas concesionarias del puerto, Cámaras de Industria y Comercio, transitarios, consignatarios, empresa estibadora, transportistas, empresas ferroviarias, etc.) y actores de la sociedad civil (asociaciones de vecinos, ecologistas, otras organizaciones no comerciales, etc.) en los procesos de toma de decisiones sobre el puerto?*
2. *¿Hasta qué punto las decisiones sobre el desarrollo del puerto son transparentes entre los actores de la comunidad portuaria? (infraestructuras, TICs, conexiones con el hinterland, tasas y tarifas, contratos, derechos laborales)*
3. *En tanto que empresa pública, ¿cómo funcionan los principales mecanismos de rendición de cuentas a la ciudadanía?*
4. *¿Qué elementos de la gobernanza del Puerto de Valencia podrían mejorarse para resultar más atractivos para las compañías navieras?*
1. *En un gradiente de 1 a 10, siendo 1 nada atractivo y 10 muy atractivo para su compañía, ¿podría situar el sistema de gobernanza del puerto de Valencia?*

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| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

# Annex 2: Summary of the structure of provision analysis on the Port of Valencia

| SoP Elements | Background settings | Direct impacts | Impact assessment |
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| **Infrastructure and superstructure** | Early infrastructure adaptation to container traffic in the 1970s.<br><br>World class infrastructure endowment. | Infrastructure and superstructure endowment can accommodate any vessel.<br><br>MSC dedicated terminal as a highly productive platform for the P3 alliance (APM-Maersk, MSC, CMA-CGM), but insufficient berth length for a Triple E vessel.<br><br>Low productivity and obsolescence of public terminals superstructure may discourage some container traffic.<br><br>Paralysed northern enlargement has entailed a large port debt. It may enhance competition but generate overcapacity.<br><br>Port planning decisions allegedly influenced by extra-port construction | Excellent infrastructure endowment may attract global shipping companies.<br><br>Privileged position of the P3 alliance on a highly competitive dedicated terminal.<br><br>Low productivity and scarce semi-automatisation face to the ports of Barcelona or Algeciras may hamper shipping operations in public terminals, namely transshipment.<br><br>Spanish political culture may increase transaction costs for shipping companies in bargaining agreements on port development with the PAV. |

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| | | companies economic interests. | |
| **ICT** | Global shift towards paperless administration and electronic information management systems<br><br>The Port of Valencia has pioneered the development of electronic data interchange bringing together firms and public organisations from both land and sea segment of the supply chain | Integrated, efficient and attractive PCS for a quicker, easier, more secure information interchange among port public agencies, land, port and sea logistics operators and other members of the port community.<br><br>More efficient PCS than direct port competitors: Barcelona and Algeciras.<br><br>Exponential increase in productivity of logistics operations through electronic data management.<br><br>Engagement of PAV in different projects for a better IT integration of the port with other actors along the supply chain<br><br>Success of PCS linked to the engagement of all members of the port community. | Dramatic reduction of information cost along the supply chain, outperforming direct competitor ports. |
| **Hinterland & Foreland connectivity** | Best geographic position to supply the centre of the peninsula.<br><br>Non-negligeable size of the nearby regional market.<br><br>Quasi-island characteristics of the traditional hinterland. | Competitive connectivity to Madrid leaves the lionshare of container traffic to the Port of Valencia.<br><br>The existence of different ports and the potential of land infrastructures generates different understandings on | Locational advantage vis-à-vis Madrid reinforced by institutions.<br><br>Strong connectivity advantage linked to infrastructure quality, with leeway for improvement.<br><br>The lack of |

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| | Hinterlands turn from mostly uncontested in the Mediterranean to competitive spaces due to the increasing size of vessels and reduced number of calls to port.<br><br>Road and rail connections with almost all the peninsula. | the hinterland the port should have.<br><br>Good road connections, except for the AP-7 tolls along the Mediterranean coast facilitate regional delivery.<br><br>Rail Mediterranean corridor and connection to Zaragoza could increase profitability of land freight forwarding and open the port to new hinterlands.<br><br>The cost of the new infrastructures is so high that it will not be payed off in a long time. Instead, short sea shipping or underutilised rail corridors might be an alternative for hinterland expansion.<br><br>Vote-seeking rationale may foster anti-economic port management from the Ministry of Development. | organisational integration of land freight forwarders with shipping operators does not translate into relevant transaction costs.<br><br>Bargaining costs between Ministry of Development, regional Governments and construction companies may result in non-optimal public choice through the eyes of shipping companies. |
| **Taxes & Tariffs** | EU impulse to liberalisation of port services.<br><br>Port Authority has legal flexibility to determine services tariffs within state law maximums.<br><br>Increasing debt at the Port of Valencia | Competitive tariffs of port services, but for towage, remaining the highest among Western Mediterranean ports.<br><br>Taylor-made terms of references to prevent competition in towage services | Path dependency of pre-free competition scenario increases monetary cost and bargaining cost of shipping companies<br><br>Tax on container rail transport to undermine the strong connectivity competitive advantage of the Port of Valencia |

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| | | result in high tariffs.<br><br>Tax on container rail transport less competitive than Barcelona or Algeciras may have triggered a loss of rail traffic from Valencia. | |
| **Contracts** | EU impulse to liberalisation of port services boosts economic exchanges and agreements. | Correct enforcement of contracts strengthens reliability.<br><br>Remaining de facto closed to competition port services within and despite the law negatively affects cost.<br><br>Structure of public and dedicated concessions facilitates a dynamic market actors interplay entailing advantages or challenges to different actors. | The Port of Valencia provides with low enforcement transaction costs for economic operators.<br><br>De facto closed competition of towage increase monetary and bargaining transaction costs among shipping companies.<br><br>Increased integration competitive advantage for the shipping company running a dedicated terminal: MSC + P3 allies.<br><br>Uneven economic performance among terminals generates a risks of reduction of intra-port competition, which might negatively impact terminal operations cost for shipping companies, especially outside P3. |
| **Security & Safety** | Ports as traditional hotspots of illegal | Diligent adoption of all major | Formal regulations and informal US |

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| | traffics, public health issues and dangerous traffics.<br><br>Enhanced security and safety international and EU standards after 9/11.<br><br>Emerging issue: cyber-attacks. | international security and safety standards has provided the infrastructure for welcoming the highest demanding traffics (US).<br><br>Security and safety management is efficiency and competitive for shipping companies | pressures have facilitated diligent adoption of security and safety standards.<br><br>Infrastructure competitive position guarantees no loss of US traffic for not complying with security standards, like other competitor ports.<br><br>Integration of excellent security management into supply chain may constitute an advantage for shipping companies. |
| **Environmental regulation** | EU impulse to environmental regulation.<br><br>Environmental self-regulation increasingly relevant in corporate policies.<br><br>Reduction of product cycle carbon footprint as a major companies' competitiveness issue for the future involving port operations. | Law regulates port management complying with sustainability criteria by port authorities.<br><br>PAV has played a strong leadership in engaging the port community for complying and surpassing environmental regulations.<br><br>Advanced environmental policies implemented in companies have resulted in firm benefits after the approval of subsequent laws. | State and market institutions have shaped PAV's strong leadership on public and private environmental policies.<br><br>PAV leadership may reduce information cost about environmental regulation development among port firms and agencies.<br><br>PAV leadership may reduce bargaining costs about environmental policy coordination in the port. |

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| | | Considerable environmental impact of port enlargement. | Legal advantages and information exchange among port community firms may foster competitiveness of the whole supply chain.<br><br>Northern enlargement environmental repairs as a PAV cost of opportunity. |
| **Port Model** | International transition towards more private involvement in port management. | The PAV only provides basic port services, the rest being open to competence and provided by private companies.<br><br>The PAV as a land owner, strategic planner, regulator of commercial activities, promoter, leader and coordinator of initiatives among businesses.<br><br>Informal coordination with port companies for PAV decision making. | New regulation has shaped landlord model rather than market.<br><br>Open competition to port services may facilitate price and quality improvement, and new forms of integration in logistics (dedicated terminal).<br><br>The promotion, leadership and coordination role of the PAV may reduce information and bargaining transaction costs among business community.<br><br>Opacity of public-private negotiations may generate information costs implying both opportunities and risks. |
| **Labour laws & organisation** | Port oversupply in the Mediterranean | History shapes strength of trade | Market and the history of labour |

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| | Shipping demanding for more productivity and flexibility while reducing costs.<br><br>Vertical or horizontal integration trend of logistics functions.<br><br>Technology developments automatises traditional port labour.<br><br>Powerful stevedoring trade unions | unions.<br><br>Exclusivity, recruitment and training regime of the port labour model endorsed by wide state consensus.<br><br>Labour port model contested by EU and shipping companies for bearing highest costs in Western Mediterranean | rights shaped the port labour model.<br><br>The strength of stevedores in negotiations implies high bargaining costs for shipping companies.<br><br>Strong supply chain integration competitive disadvantage due to the difficult integration of stevedores with logistics companies. |
| **Customs** | EU competence seeking for quick, simple and unified procedures, towards a paperless environment.<br><br>Trade increase of Europe-Far East route affecting Mediterranean ports.<br><br>EU transport policy promotion of short sea shipping among member states. | Spanish Tax Agency use of ICT has provided with an effective customs system in the Port of Valencia.<br><br>Some ways for improvement: integration with PCS, EU customs, and address few inefficiencies in quasi-customs services. | Efficient management does not hamper shipping companies competitiveness, but since inter-port differences are minor for the total cost of operations, they do not really constitute a competitive advantage. |