

KEY TRENDS IN THE GLOBAL PORT DUE TO TRAFFIC VOLUMES

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Abstract: *In recent years, the ports are facing issues like: operation of biggest ships, connectivity to the hinterland and competition with other ports to attract new traffic volumes. Alliances that forms on some routes conduct to an increasing freight volumes for certain ports positioned favorably to the main logistics chains. Thus, there are situations where ports operate equal volumes of cargo by a different number of terminals. This matter is not liked by the shipping companies, because they'll have to operate all traffic in more than one place. As shown in the article below, the fragmentation of a port's capacity represents an important issue to which ports have to deal with in context of increasing traffic volumes.*

Key-words: *shipping, port, traffic volumes*

1. Introduction

As always, the ports were an important component by linking of global trade with maritime transport. Ports play role both of endpoint within maritime transport and the link with other modes of transport in the supply chain [1].

Welfare of port is a result of traffic volumes attracted by port due to the easy connectivity with other modes of transport, port equipment, port characteristics, all these factors being the results of the strategy adopted by the port management [2].

Maritime transport continues its battle with road transport for first place in cargo transport being helped indirectly by policies with horizon 2020, 2030 in terms of reduce emissions.

Ports are a point of interest to all who interact with components of the port community, in one way or another. Policies established local or regional include the port. Thus, it is desire of transpose the requirements of pollution in port regulations by focusing on ship emissions [3] which, together with the introduction of technologies related to green energy, lead to green ports [4].

Taking into account the uncertainty that exists in the maritime market, the fact that some markets, such as dry bulk market, have not yet recovered from the economic crisis of 2009, lead to the need to permanent connect of port to changes and trend identification for each market. The trend is different for each port individually, even more so when talking about large ports or small ports. Small ports can feel the lack of an integrated

management strategy even if there are local community contribution [5].

2. Key trends in the global port due to traffic volumes

Factors influencing decisions in port can delimit in direct and indirect factors. In the category of direct factors are those who depend on maritime transport and offer of service by seaport. Indirect factors are dependent on an interconnectivity of factors such as: evolution of developing economies that influence the demand on the commodities market, political situation worldwide which may lead to changes in the fees within trade agreements between countries or regions. Thus, based on forecasting of maritime market dynamics can be identified major trends regarding the development of seaports. Further, will present the main trends for seaport considering the amount of traffic operated.

1. Leadership

Port leadership must have an overview of the shipping industry, image which does not refer only to region where is port but worldwide one, to predict the evolution of shipping and establish a development strategy on medium term. Based on the type of port management (tool port, service port, landlord port and private port), level of acceptance and support of port within the local community and the involvement of the port community leads to a successful port leadership. As expressed the chairman of AP Moller Holding, port leadership should not be "static in a dynamic world". Effects of changes suffered by shipping

will become external factors that will influence negative the volume of cargo operated.

Once with stabilization and an increasing trend of the global economy, the ports are in an unprecedented competition, port leadership is focused on building a new business based on current pillars of shipping.

A signal, on a further development of shipping routes, comes from China's economy, which is in the process of transformation from a mainly manufacturing into one that will focus on services. This result comes because of the increase in the price of labor force.

In response, multinational companies seeking to reposition itself in countries like Indonesia, Vietnam and other countries where labor cost is relatively low. This will lead to changes for the ports in those countries and in the flow of the supply chain from producer to consumer (which will remain the same).

Another aspect to be taken into consideration by the port leadership belongs to the concept of "green port". With the implementation of policies relating to reducing NOx emissions, pollution and energy efficiency, the ports will need to make a considerable investment for achieving the targets. Thus, in advance, port leadership will have to notify the port community about the costs that will arise from investment in technology and training resources. These costs can be recovered by increasing port tariffs. As long these things will be done gradually, through good communication with the shipping companies, the effects will be positive.

2. *Connectivity to shipping lines*

Connectivity to shipping line is the most visible element when we talk about the future of a port. Connectivity is a general term that hides several distinct elements, each with important implications on the development of freight traffic in the port.

To understand the importance of this issue, must start from the shipping company, which in development a strategy for the medium term, focused on the acquisition of large and very large ships to the detriment of those up to 5,000 TEU, in 2015 being recorded an increasing of transportation capacity by 8%.

The introduction of large capacity vessels on certain navigation routes have led to the replacement of several small vessels resulting a reduced number of loops on a navigation route. At first sight, it should not influence too much the ports because the cargo volume would be the same in general. However, a closer focus on results, reveals that ports are influenced by the following aspects:

- changes needed to be made by port on depths of the basin, the length of berths, port facilities for faster operation, large storage areas;
- because of the cascade effect that occurs by replacing the ships on the navigation routes, not just ports that serve large ships must consider the elements outlined above but many ports will have to receive ships larger than previous ones by changing the composition of ships from route lines;
- Alliances that form on certain routes creating a pressure on ports.

Table 1 Alliance formation in container shipping, Q2/2017

Alliance	Container shipping company	Market share
2M	Maersk Line	15.7 %
	MSC	14.2%
	HMM	2.3%
The Alliance	Yang Ming	2.8%
	MOL	2.3%
	K-Line	1.8%
	Hapag-Lloyd/UASC	4.7%/2.5%
	NYK Line	2.4%
Ocean Alliance	CMA CGM	10.5%
	COSCOCS	7.9%
	OOCL	2.7%
	Evergreen	4.8%

Alliances that were or will form in container lines (2M, Ocean Alliance, The Alliance) will target to reduce competition until it will be removed. This should be treated with great care for each port individually and it will be need to establish a reaction strategy for the eventual withdrawal of shipping lines.

Another trend on establishment of a strong link between the port and container lines is that ports offer liner companies equity or concessions for port terminals (equity for business). This aspect does not necessarily lead to obligation of shipping company to introduce the port on their routes, but it represents a substantial advantage over competing ports from the area. Problems in a port can arise when a liner companies with shares on port enters into an alliance and leadership of this alliance decide that ships that are part of the alliance to operate in another port.

Another issue taken into consideration by alliances when can choose ports for their ships is the fragmentation of port capacity. The line shipping companies prefers port where their ships do not unload to a large number of terminals, in order to have a minimum fragmentation of the cargo knowing the complexity of the supply chain. The table below is a statement of operating capacity at the container terminal for several

major ports in Europe, Asia, North and South America.

Table 2. The operating capacity in container terminal

Port	Average container traffic/year (2014) Mln. TEU	Number of container terminals	Mln.TEU/container terminal
Tokyo, Osaka, Kobe	5	29	0.17
Los Angeles	8.3	8	1.04
Long Beach	6.8	6	1.13
Buenos Aires	1.5	4	0.38
Busan	18.6	9	2.07
Rotterdam	12.29	13	0.95
Bremen	9.73	4	2.43
Hamburg	5.78	3	1.93
Duisburg	3.4	8	0.43

In terms of supply chain, the advantage of small and medium ports consists in flexibility by carrying operations in a small number of terminals, thus offering liner companies a reduced fragmentation.

3. *Investment in technology*

Technology investments in a port can approach aspects related to serve ships or labor force. Whichever is aspect approached, port leadership should not forget the benefits by implementing new technologies. Thus, the ports must identify methods of applying the concept of Industry 4.0.

Given the complexity of the supply chain for goods arriving in the port, it is useful implementation of new digital industrial technology, which lead to increased productivity in port activity and in the same time will lead in change the profile of port workers.

The maritime industry depends on the degree of integration of ports in the regional logistics chains. The rapid advance of new technologies will force the ports to become technology companies to be able to remain competitive and to attract employees, in the context of a growing shortage of employees.

Technology helps major ports to manage continuously improve internal processes by collecting data from clients. In future, all ports will be required to adopt this model of development if they want to remain competitive and attract employees.

Indeed this "movement" will not take place immediately, port management having a period of up to two years for a reposition and re-thinking of a medium-term strategy. Also, this period will become for some ports a window of opportunity.

The main problem appears once with the dissolution of certain trade agreements, as a result of political decisions, resulting in impose of taxes on import / export of certain products and so the quantity of cargo transitioned will decrease.

A good example is the attempt of EU to introduce Maritime Single Window, an electronic reporting system for reducing bureaucracy in maritime transport, simplifying and harmonizing of administrative procedures at European ports. The successful implementation of this investment will lead to lower unproductive time when the ship is stationed in port and efficient of movement time of cargo along the supply chain.

Also, Maersk with IBM develops Blockchain technology that will conduct to a better flow of the supply chain for goods on long distances, actually needed and at seaports.

4. *Political factors*

Political factors, even if they were put on the last place, may have an important influence regarding future changes in ports volume traffic. Political actions like Brexit are unpredictable not only for UK ports but and for business partners from EU ports and beyond. 45% of UK trade is with EU member states. Regarding business with other areas, before Brexit's announcement, cargo traffic by sea on Asia-Europe route was expected to increase annually by over 4% -5 values% but in 2016 was an increase of only 1.5%.

For example, in 2010 when DP World invested in London Gateway Port over £ 1.5bn on a period of 10 years, they did not take in consideration political action like Brexit that leads to uncertainties regarding the rate of return expected at the time of investment.

Regarding shipping, trade agreements between countries on different continents are very important because over 85% of cargo traded is transported using maritime transport. One such example is the Trans Pacific Partnership involving US and other 11 states on different continents. US withdrawal from this trade agreement will decrease the quantities transported by sea due to re-introduce of taxes for certain products.

The Transatlantic Trade and Investment Partnership is another example of trade agreement between the US and Europe, which is in the stage of negotiations with fewer opportunities of closure once with US change of

political views. This trade agreement can increase the volume of cargo operated in ports between these two continents with opportunities for companies on the logistic chain.

Conclusions

The trend of port development must take into account the positioning on known navigation routes, attracting shipping companies in the port through equity for business (offer of shares to liner companies), a very good connection with regional supply chain, passing to new digital industrial technology by significant investments in technology.

All categories of ports, indifferent of the method of administration and size, will need to align with these transformations of the shipping industry and a solution would be cooperation between different port terminals by creating joint venture companies. Those company will have available berths, equipment's for operation and even human resources, shared by terminals, resulting a high flexibility in the relationship with liner shipping companies.

The trend for larger ports is reducing fragmentation of port capacity. Further development of the port must consider not necessarily the increasing of terminals number as expanding the capacity of existing ones. Thus, the ports with lower values on operating capacity of terminal will have to rethink very well the flow of supply chain to please liner companies, in particular, alliances that are in the service on this routes.

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