

THE DEVELOPMENT OF SHORT SEA SHIPPING IN THE FRAMEWORK OF EUROPEAN INTERMODAL TRANSPORT

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ABSTRACT

Intermodal transport represents a vital element for the world trade, which tries to integrate in the most efficient way various modes of transport. In order to develop this type of transport, the European Union promotes short sea shipping as a highly efficient form of transport when referring to energy conservation and environmental performance. Within our study we have tried to highlight its importance for the European transport system by presenting a statistical overview of short sea shipping in Europe, as a sustainable part of the intermodal transport.

Keywords: *intermodal transport, sustainable transport, ports, short sea shipping, European transport*

1. INTRODUCTION

When referring to European Union's competitiveness there is a key element that is needed in order to achieve socio-economic and environmental sustainability, an efficient transport system. Taking into consideration that the overall efficiency of a transport system can be accomplished only through a door-to-door transport chain, there was introduced the concept of intermodality. Its main goal refers to the integration between modes that should improve in the end the overall efficiency of the transport systems. The standard definition of intermodal transport according to the UN/ECE 2001, attest that it tries to use the best benefits from every type of transport modes in one integrated transport chain (Flodén, 2007), using at least two modes of transport to transfer the goods in a single loading unit or vehicle.

As roads become more congested and trade increases, most European ports and traders tried to find an alternative to move the goods out of ports and closer to their final destinations. One efficient alternative that was introduced in order to accommodate freight without increasing road congestion was short sea shipping, seen as an essential part of the multimodal European transport system. Studies have shown that intermodality is the key needed to develop short sea shipping, a priority of the European Union transport policy since 1995.

2. LITERATURE REVIEW

Before the definition of the European Union, Balduini (1982) presented short sea shipping as: "a maritime transport between ports of a nation as well as between a nation's port and the ports of adjacent countries". Later, the European Commission presented its definition regarding short sea shipping, as the movement of cargo and passengers by sea between ports situated in geographical Europe or between those ports and ports situated in non-European countries having a coastline on the enclosed seas bordering Europe. According to this definition short sea shipping includes domestic and international maritime transport and it extends to maritime transport between the Member States of the Union and Norway and Iceland and other

States on the Baltic Sea, the Black Sea and the Mediterranean (Commission of the European Communities, 1999).

According to the European Short Sea Network, short sea shipping (SSS) is the intermodal transport of Intra-European cargo on a door-to-door basis, usually in containers (of 20 ft, 30 ft, 40 ft and 45 ft) or trailers. On brief we can say that it is the movement of cargo and passengers by sea between ports that does not involve an ocean crossing (Johnson and Styhre, 2015).

The European Commission's White Paper "Roadmap to a single European transport area- Towards a competitive and resource-efficient transport system" (COM (2011) 144 final of 28 March 2011) sets some important strategies regarding intermodal transport, for which short sea shipping is a vital component, due to the fact that an adequate port infrastructure and good performance of port services are very important for European Union's growth. The new Trans-European Transport Network also refers to short sea shipping as a key element, especially the Atlantic Corridor one of the 9 Core Network corridors, which sets it as one of its major objectives as an alternative to saturated land routes. The main objective of Short Sea Shipping policy in Europe is built around the "Motorways of the Sea", which according to the European Transport Policy for 2010: Time to decide, white paper, COM (2001), are door to door regular (with high frequency) services including a short sea leg allowing a significant modal shift from the road (Douet and Cappuccilli, 2011). The "Motorways of the Sea" are seen as a good substitute of the motorway of land, needed to avoid congested land corridors and to give access to countries separated from the European Union mainland.

Many studies were conducted referring to short sea shipping's efficiency, ones that used case studies (Torbianelli, 2000), cost-benefits analysis compared to land-transport modes and its environmental contribution (Lombardo, 2004) and the general European shipping policy (Paixao and Marlow, 2001). Studies have shown that without huge investments in infrastructure and in intermodal transfer points, short sea shipping will not be fully integrated as an alternative mean of freight movement, which in the end could reduce the social costs and the number of trucks which daily congest

about 4000 km of road networks (Douet and Cappuccilli, 2011).

3. OBSTACLES AND ADVANTAGES TO SHORT SEA SHIPPING

As stated in 2009 by the European Union, after analyzing the 2003 Programme for the Promotion of Short Sea Shipping, there were identified some obstacles that stops the optimal development of short sea shipping:

- It has not yet been fully integrated in the door-to-door supply chain;
- It requires good hinterland accessibility and also higher port efficiency;
- It involves complex administrative procedures.

In order to overcome these obstacles the European Union has put in place some actions (that describes legislative, technical and operational initiatives such as standardization of intermodal loading units, a guide to customs procedures for short sea shipping, maintaining the efficient operation and guidance of Short Sea Promotion Centers, new routes, construction of infrastructures or feasibility studies) that are aimed at developing its efficiency at EU, national, regional and industry levels, so that it can remain on the political agenda as a key element. Industries are considered to be the most important ones for the implementation of short sea shipping.

There are many arguments that highlight the role of short sea shipping for the European transport system. As stated by the ECASBA (European Community Association of Ship Brokers and Agents), it could represent the most efficient and environmentally friendly mode of transport if it will be used at its full potential.

- First of all its development could help to reduce the growth of road transport and restore the balance between modes of transport, by passing in the end the bottlenecks.
- It also reduces the impact of transport on the environment, promoting a sustainable transport system; its external costs are lower than other mode of transport.
- Compared with inland transport, short sea shipping uses no-cost infrastructure, the sea. In terms of constructions and maintenance, the sea lanes and port infrastructure require smaller investment budgets than other transport mode.
- It is able to reach some regions like Ireland, Norway, regions on the Baltic Sea, the Black Sea and the Eastern Mediterranean that are impossible or difficult to reach by other modes, this is why short-sea- shipping is seen as the leading mode of transport for trade in goods between Eastern and Western Europe (OECD, 2001). It can also contribute to the development of remote and peripheral regions.
- It offers one contact throughout the total door-to-door transport and it is cheaper than road transport and also more reliable.
- Due to its role and to the fact that it develops a logistics business, it requires highly specialized employees; either we refer to shipyards,

brokerage, insurance or freight forwarding sectors.

Taking into consideration all this advantages we can say that short sea shipping could offer shippers a rapid, regular and above all secure service, by using standardized equipment (such as pallets or containers) as part of the intermodal transport system (OECD, 2002).

4. STATISTICAL OVERVIEW OF SHORT SEA SHIPPING IN EUROPEAN UNION

Data analysis revealed that cargo volumes in the short sea shipping sector are growing faster than road haulage, short sea shipping currently accounting nearly 40% of all freight moved in Europe and the volumes have increased over the years while the market share has been stable (EC, 2012), with some 10,000 ships operating solely within Continental waters.

The table below shows us that the volume of freight transported by short sea shipping have increased by 12.923 thousand tons yearly. Calculating the growth rate over previous period we have obtained small increases from one year to another and the highest negative value in 2009, due to the effects of economic crisis.

Table 1. Evolution of gross weight of goods transported to/from main ports in EU28 in the period 2005-2013

Year	Unit (thousand tons)	Growth rate over previous period (t/t-1)
2005	2.901.741	-
2006	2.989.144	3,01
2007	3.076.280	2,91
2008	3.105.201	0,94
2009	2.730.655	-12,06
2010	2.876.437	5,33
2011	2.997.159	4,19
2012	2.992.036	-0,17
2013	3.005.125	0,43

Source: [12]

Considering the type of cargo in short sea shipping, table 2 presents a picture of gross weight of goods transported to/from main ports. Liquid bulk goods have the biggest share in total (44,77% in 2013) in comparison with dry bulk goods – 19,54% and large containers – 14,28%. Despite this fact, liquid bulk goods have recorded a rate of decline by 14,48% in 2013 compared to 2005.

Table 2. Gross weight of goods transported to/from main ports, by type of cargo in EU28

	2005	2007	2009	2011	2013
	-thousand tons-				
Total	1.808.019	1.865.243	1.691.734	1.787.838	1.746.426
Dry bulk goods	352.233	364.340	340.203	359.489	341.352
Liquid bulk goods	914.345	903.814	843.880	829.128	781.966

Large containers	183.425	209.299	196.613	232.203	249.401
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Source: [12]

During the present study we stressed the importance of short sea shipping for regions like Ireland, Norway, regions on the Baltic Sea, the Black Sea and the Eastern Mediterranean that are impossible or difficult to reach by other modes of transport.

Having in view the statistical data from the table below, Mediterranean Sea ranks the first place from the sea regions, with an annual rate of increase by 435 thousand tons. North Sea and Black Sea recorded rates of decrease in the period analyzed (-7475,75 thousand tons annually for North Sea and -561,625 thousand tons annually for Black Sea).

The differences between the trend of evolution of these sea regions in the period 2005-2013 can be observed better in a graph (see the figure below).

Table 3. Gross weight of goods transported to/from main ports, by sea region of partner ports in EU28 in the period 2005-2013

Year	North Sea	Mediterranean Sea	Black Sea
2005	558.035	566.839	132.957
2006	560.757	570.286	139.025
2007	567.815	592.593	134.886
2008	562.659	596.566	136.656
2009	504.078	571.586	126.753
2010	527.324	580.728	128.050
2011	523.810	552.699	133.599
2012	505.985	577.869	127.479
2013	498.229	570.319	128.464

Source: [12]

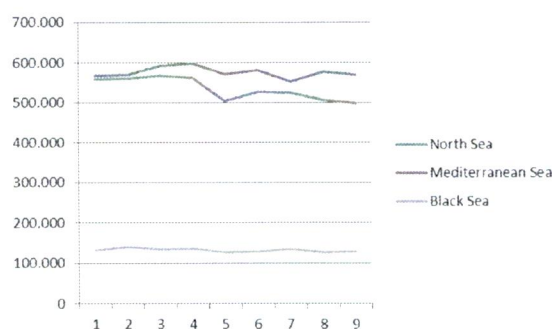


Figure 1. Evolution of Gross weight of goods transported to/from main ports, by sea region in EU28 in the period 2005-2013

A good example of port in North Sea region is Rotterdam, which has developed and promoted strong short sea services. This fact has happened due to its good and frequent connections with other ports and to its efficient handling operations. Also, the port of Rotterdam is a leader in the transshipment of oil products, containers, fruit, coal and so on. It is the most important economic and industrial centres of Western Europe and it can be reached within 24 hours.

Scandinavia, the United Kingdom and Italy can be considered part of Rotterdam's hinterland, due to their maritime connections. All these benefits and development stimulate the main goal – "to promote business activities in a European perspective based on the concept of a safe, clean, sustainable port." [13]

5. BEST PRACTICE EXAMPLES OF PROMOTING SHORT SEA SHIPPING IN EUROPE

Almost unknown a decade ago, Short sea shipping is a fast-evolving activity; it changes the world of transport and logistics.

In the last years some issues are to be considered:

„- A wave of take-overs and joint ventures among shipping companies has turned some of them into larger and more substantial players.

- The shippers firmly believe in the further development of short sea shipping: they invest in new ships and increase their capacity and range by deploying extra vessels.

- The ports continue to develop their hub function: larger *round-the world* players can only be attracted if they are convinced that their cargo can be conveyed through a network of maritime links".[14]

Short sea shipping is a sustainable part of intermodal transport and more often shippers prefer to use it. A good example of transport modes combination – road haulage, rail, inland navigation and short sea shipping – is the intermodal transport of household appliances for Bosch/Siemens Household Appliances made by ACB group to the UK. The group invested in 72 pallet-wide 45' high cube containers with a special height of 3 meters. Since November 2006 the freight from Southern Germany has increased to 9 containers per day, which is the equivalent of some 2,200 lorries per year.[14]

Another good example is that of the short sea shipping used in the transport of refrigerated freight. European Food Transport (E.F.T.) demonstrates that a short sea-road combination is perfectly feasible. E.F.T. uses ro-ro and ferry solutions for the transport of its lorries. This particular haulier uses short sea services to Helsinki (5 containers a week), to Göteborg (12-15 containers a week), to Norway (4 containers a week) and to the UK (10-15 containers a week). From the United Kingdom empty pallets and end products such as fruit juice are already taken along.[14] So, in this case the synergies between road transport and short sea shipping are beneficial for the preservation of sensible-temperature goods and for their „just-in-time" arrival.

More and more companies activating in transportation field or in other areas of activity, have chosen short sea shipping to avoid the congestion of road transport and to preserve the environment. For example, Hoboken-based construction company Smulders has used short sea shipping to transport 11,000 tons of foundation elements for a windmill park to the Irish Sea.[14] Specially adapted coasters have loaded the heavy elements on the river Scheldt and have transported them to their discharging place.

Shortsea Promotion Center Flanders stated that „in recent years pure hauliers also have found their way towards short sea, in most cases as a consequence of the ever congesting European road network”.

6. CONCLUSIONS

The statistical overview carried out in the research on short sea shipping emphasizes that, due to its advantages and the fact that it is a good way of avoiding congestion of road transport and of preserving the environment, short sea shipping is seen as the most suitable mode of transport chosen by shippers. Even if in Europe short sea shipping consists mainly of transport between European countries, it seems to be a good way of performing door-to-door transport.

When referring to long distance it is clear that maritime transport is highly competitive, but for shorter journeys studies have shown that short sea shipping has become the most attractive alternative. By using pallets or containers, short sea shipping offers a fast, regular and secure service to shippers involved in the intermodal transport system.

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