

THE PERSPECTIVES OF MARITIME TRANSPORT IN EU AND ITS INTEGRATION IN THE SUPPLY CHAIN MANAGEMENT

Cărăgin Andreea Raluca

*The Academy of Economic Studies Bucharest
The Faculty of International Business and Economics*

Paraschiv Dorel Mihai

*The Academy of Economic Studies Bucharest
The Faculty of International Business and Economics*

Voicu-Dorobanțu Roxana

*The Academy of Economic Studies Bucharest
The Faculty of International Business and Economics*

In a globalised economy transport is one of the most important factors linking the national economies and maritime transport is the main way to deliver goods in international trade. For any international company, choosing the appropriate transportation as part of the logistic solution is vital for its competitiveness. In the context of the economic crisis, CEE strategic location factors play an important role for regional companies which adapt and change their logistic services by developing new scenarios for the shipping industry in order to obtain a better position on the global market. In addition to a favourable geographical location CEE has several other important arguments, like sufficient harbours for developing container terminals to launch extensive container transport transit. The most important recent trends in logistics are shown, as well as the framework of the EU maritime transport.

Key words: maritime transport, EU transport strategy, supply chain strategy

Cod JEL: L91, L98, L52.

1. Introduction

In Europe there are over 1200 commercial harbours spread over 100 000 km of coast, many of them benefiting from the European funds. Improving the competitiveness of the maritime transport can bring important benefits to the whole economy. Approximately 40% of internal commerce goods and almost all goods destined for the international commerce are transported by sea. This sector represents an important source for jobs and income in Europe. Every year, over 400 million passengers and over 3.5 billion tones of goods pass through the European ports. Using the rapid growth of international commerce in the last decade, the maritime goods transportation sector in Europe has also developed considerably, companies investing important amounts of money in fleet renewing and extension. These companies face a fierce competition due to the firms that apply inferior safety measures. The instability of energy markets and piracy also stop the development of maritime transportation.

The purpose of this study is to increase understanding of the opportunities for improving freight logistics and transport in Europe, identify obstacles to change and recommend measures that would enhance the competitiveness of European industry and services. The article focuses on some key topics: the main driving forces behind changes in the location of economic activities in Europe, how are these decisions influenced by supply chain management considerations and what initiatives would improve the efficiency of European freight logistics and transport. The most important recent trends in logistics are towards: shorter order cycles, more frequent, more reliable deliveries, closer relationships with only few of the suppliers, greater use of IT systems

and outsourcing logistics; the future of E-commerce, and the impact which this will have on logistics is still to be determined⁵⁴.

2. Literature review

The paper is presenting a synthesis of the recent research works in transport and supply chain management. The *supply chain management* is considered by **Hung et al (2004)** to be used in the literature with different meanings, such as: purchasing and supply; transportation and logistics; marketing; and level of coordination. According to **Mak and Ramaprasad (2003)** *supply chain management* is “a set of approaches utilized to efficiently integrate suppliers, manufacturers, warehouses, and stores, so that merchandise is produced and distributed at the right quantities, to the right locations, and at the right time, in order to minimize system-wide costs while satisfying service level requirements”. A lot of research has been made regarding supply chain management, but according to **Sanchez-Rodrigues, Potter and Naim (2010)** “little research has been undertaken including transport operations as a strategic member of the supply chain, with hardly any work on the impact of uncertainty on transport operations within supply chains”. In the maritime transport sector, the effort to obtain economies of scale and a certain level of control over the logistic function are influenced by services globalization, the development of the container system transportation, the transport alliances and transport concentration in a small number of ports (the so called hub ports). The role of ports has changed now, transforming them into freight distribution hubs⁵⁵.

Sanchez-Rodrigues et al. (2007) cited by **Sanchez-Rodrigues et al (2010)** develop a logistics-focused uncertainty model. The Logistics Uncertainty Pyramid Model includes the following uncertainty sources that can affect transport operations: shipper, customer, carrier, control and external uncertainty. The research conducted by **Sanchez-Rodrigues et al (2010)** suggests the following causes of transport uncertainty: delays, demand and information issues, delivery constraints and lack of coordination. *Delays* appear to be very important for shippers, customers and providers, hence affecting all logistic chain members. *Demand and information issues* were considered the second most important barrier to achieving a high level of logistics performance; *delivery constraints* are considered to be another important barrier in transport operations, as they can cause potentially delays. Finally, *lack of coordination* within the logistics chain and at the company level can cause disruptions in the delivery process.

Few companies are self-sufficient, therefore the dependence on other firms. When their resources and competencies are not sufficient, firms are likely to establish connections with other organizations on the market that are able to offer the needed services. According to **Fugate et al. (2009)** “in a supply chain environment, buyer-seller arrangements involve other entities as well, such as third-party organizations (e.g. transportation providers)”. Mentzer et al. (2001), cited by **Grawe (2009)** considers that “an effective logistics operation can provide a competitive advantage for a firm and increase a firm’s market share”. Logistics can also enhance customer value and logistics managers consider that it adds value to the company.

Monczka et al. (2005) cited by **Meixell and Norbis (2008)** thinks that “mode choice and carrier selection are part of the decision-making process in transportation that includes identifying relevant transportation performance variables, selecting mode of transport and carrier, negotiating rates and service levels, and evaluating carrier performance”. Choosing the appropriate transport solution is very important, as it represents an average of 20% of total production costs.

⁵⁴ Freight Logistics and Transport Systems in Europe. Trends in the location of European industry and its interaction with logistics and transport, European Council of Applied Sciences and Engineering Euro-CASE, 2000

⁵⁵ Short sea shipping in Europe, Volume 772, De European Conference of Ministers of Transport. Combined Transport Group

Meixell and Norbis (2008) reports that transport industry challenges are nowadays transportation capacity shortage, international growth of economic activities, economies of scale and scope, security concerns and environmental and energy concerns.

Transportation capacity shortage has surfaced in logistics management. Capacity limitations have an impact on all carriers; therefore their capacity to overcome these limitations will help to differentiate from current competition.

Global transportation involves higher cost and longer transit times, making *international growth* an important challenge in supply chain management.

Economies of scope are “readily apparent relative to the use of transportation equipment after it is emptied, while *economies of scale* are a concern relative to shipment size. There is a strong incentive to ship in full truckloads to minimize the cost associated with the considerable capital expenditure for equipment. Economies of scale are also affected by the handling of inventory” considers **Meixell and Norbis (2008)**.

Security in the supply chain is also very important thinks Russell and Saldanha (2003) cited by **Meixell and Norbis (2008)**, the consequences being “an additional \$151 billion annual cost, \$65 billion of which is in logistical changes to supply chains. How can this problem be solved? “By selecting security-conscious carriers, shipping via secure ports, meeting packaging security requirements, and providing background information on key personnel” considers Rinehart et al. (2004) cited by **Meixell and Norbis (2008)**.

Environmental and energy concerns presents a challenge to logistics managers, as environmental impact is increasingly important to consumers, being known that transportation sector is a major contributor to air pollution, acid rain, maritime water quality problems.

3. EU legal framework for the maritime transport

Transport is an essential component of the European economy. The transport industry at large accounts for about 7 % of GDP and for over 5 % of total employment in the EU. The present situation of the supply chain system in CEE area has been from manufacturer-led to retailer-led supply chains (from “push” to “pull” supply chain economics). Transport and logistics have relatively little effect on the global location of primary activities – the manufacture and sale of final products. This is determined by markets, labor conditions, financial incentives, and the social or cultural preferences of senior management. However they influence regional and local location decisions where site accessibility is a significant factor⁵⁶.

In the maritime sector, marine pollution and maritime accidents were considerably reduced and the EU has established one of the most advanced regulatory frameworks for safety and for pollution prevention. Safety agencies have been set up also for aviation (EASA), maritime affairs (EMSA) and rail transport (ERA)⁵⁷.

In 2009, the third maritime safety package has been adopted by the European Parliament. With the adoption of the first two legislative packages on maritime safety (the so-called ERIKA I and II packages), the message delivered by the EU being that substandard shipping would no longer be admitted.⁵⁸ The EU has proposed guidelines for the development of an integrated maritime policy, which constituted one of the Commission’s strategic objectives for the period 2005-2009⁵⁹.

These guidelines form a central part of the Communication on an Integrated Maritime Policy for the EU (Blue Paper) adopted by the Commission and approved by the European Council in 2007

⁵⁶ Freight Logistics and Transport Systems in Europe. Trends in the location of European industry and its interaction with logistics and transport, European Council of Applied Sciences and Engineering Euro-CASE, 2000, p. 8-9

⁵⁷ A sustainable future for transport. Towards An Integrated, Technology-Led And User-Friendly System, Directorate General for Energy and Transport, European Commission, 2009

⁵⁸ http://ec.europa.eu/transport/maritime/safety/third_maritime_safety_package_en.htm.

⁵⁹ http://europa.eu/legislation_summaries/maritime_affairs_and_fisheries/maritime_affairs/pe0003_en.htm.

and are part of the United Nations' 1982 Convention on the Law of the Sea and the World Summit on Sustainable Development in Johannesburg in 2002. Member States are encouraged to *establish their own integrated maritime policies* in close collaboration with their national and regional maritime stakeholders, should consider *creating internal coordinating structures* within their government frameworks and all *maritime stakeholders should participate in integrated maritime policy-making*.

“Maximising sustainable use of the oceans and seas while enabling growth of the maritime economy and coastal regions is the prime objective of an integrated maritime policy for the EU” according to the European Commission; therefore the following measures will be taken:

- create a strategy to alleviate the consequences of climate change;
- enhance professional qualifications and studies in the maritime field;
- create a European maritime space without administrative or customs barriers as well as a comprehensive maritime transport strategy for 2008-2018;
- issue guidelines on the application of environmental legislation relevant to ports;
- promote technological innovation in the shipbuilding and energy sector;
- support international efforts to reduce pollution of the atmosphere and greenhouse gas emissions attributed to ships;
- build a knowledge and innovation base for the maritime policy.

The Commission Green Paper: Towards a future Maritime Policy for the Union: a European vision for the oceans and seas is in line with the Lisbon Strategy and aims to obtain sustainable development by reconciling the economic, social and environmental dimensions of the exploitation of the seas and oceans. The EU is the biggest maritime power in terms of maritime transport, coastal tourism, offshore energy production, shipbuilding technologies and related services.

The EU is also the leader in building of cruise ships, renewable energy and ports. The Green Paper examines the factors influencing competitiveness: the state of the marine environment, scientific knowledge in all areas relating to the oceans, innovation and the expertise of the workforce. Maritime policy “forms part of the Lisbon Strategy by proposing to exploit synergies between regional policy and policies on fisheries, research and innovation, businesses, maritime transport, the environment and energy in order to promote sustainable development”⁶⁰.

4. CEE's arguments in logistics

In the context of the economic crisis, CEE strategic location factors play an important role for regional companies which adapt and change their logistic services by developing new scenarios for the shipping industry in order to obtain a better position on the global market. Together with further deepening of the single market, integration of the EU with neighbor regions will continue. Globalization, enabled by the liberalization of trade and by developments in transport (such as reefer containers) led to enhancement of the world economy. Transport outside Europe will increase much more than inside Europe and EU external trade and transport are likely to keep growing rapidly in the coming years.

SWOT Analysis

Strengths

- Low labor costs, compared to the ones in Western Europe; the problem is now if this opportunity will remain with the EU accession of CEE countries.
- Workforce is literate and speaks foreign languages.
- Lower operating costs are provided by the difference in labor rates, generating net savings.
- Delocalization of R&D centers in CEE means that companies can develop products adapted to

⁶⁰ http://europa.eu/legislation_summaries/maritime_affairs_and_fisheries/maritime_affairs/l66029_en.htm.

the targeted markets.

- The Black Sea represents a main maritime transport way in Europe, and Romania has access to it; it also has access to the Danube, a very important important way of, which has a total 2411 km navigable, 78 ports and 1100 ships registered in 30 states.

Weaknesses

- The EU is on its way to create a level playing field in the increasingly integrated transport market, but issues such as differences in taxation and subsidies still need to be addressed.

- The environment remains the main policy area where further improvements are necessary. In the EU, compared with 1990 levels the transport was the sector with the biggest growth rate of greenhouse gas emissions.

- Lack of enough intermodal nodal points.

- Not enough developed port infrastructure.

- The logistic market started to have a negative rate last year, as the quantity of logistic spaces delivered has decreased from 250.000 in 2008 to only 50.000 in 2009 in Romania, for example. The rate of usage of logistic spaces also decreased from 96% in 2008 to 88% in 2009.

Opportunities

- The demand for freight transport in the EU grew on average by 2.7 % per year. The growth of freight transport is also linked to economic practices (concentration of production in fewer sites, to economies of scale, delocalization, JIT deliveries) that allowed reduction of costs.

Threats

- Environmental challenges

- Transport will suffer from the effects of climate change and will necessitate adaptation measures. Global warming resulting in a rising sea level will amplify the vulnerability of coastal infrastructures, including ports.

- Increasing scarcity of fossil fuels.

- The economic crisis that affects this sector of activity also.

5. Conclusions and future research

The purpose of this study was to show the role of transport policy in Europe, as transportation represents more than only a problem of cost, distribution playing an important role in obtaining a competitive advantage. "The performance of the transport carrier may influence the effectiveness of the entire logistics function of a company", as it is considered by **Meixwell and Norbis (2008)**. The results of this study also reveal the presence of a regulatory framework of the maritime transport in the EU and also show, through a SWOT analysis the main arguments that CEE region has regarding the logistic system.

Bibliography

1. **Ximena, Clark; Dollar, David; Micco, Alejandro** - Port efficiency, maritime transport costs, and bilateral trade, *Journal of Development Economics*, Volume 75, Issue 2, December 2004, pp. 417-450, 15th Inter American Seminar on Economics
2. **Golub, Stephen S; Tomasik, Brian** - Measures of International Transport Cost for OECD Countries, <http://ideas.repec.org/p/oec/ecoaaa/609-en.html>
3. **Fink, Carsten; Mattoo, Aaditya; Neagu, I. C.** - Trade in International Maritime Services: How Much Does Policy Matter?, *The World Bank Economic Review*, vol. 16, no. 1, pp. 81-108, <http://wber.oxfordjournals.org/cgi/content/abstract/16/1/81>
4. **Leggate, Heather; Mc Conville, James; Morvillo, Alfonso** – International maritime transport perspectives, *Routledge Advances in Maritime Studies*, 2005

5. **Sanchez-Rodrigues, Vasco; Potter, Andrew; Naim, Mohamed M (2010)**, Evaluating the causes of uncertainty in logistics operations, *International Journal of Physical Distribution & Logistics Management*, Vol. 40, Issue 1/2, pp. 61-83
6. **Douglas, Matthew A.; Swartz, Stephen M.** (2009), A multi-dimensional construct of commercial motor vehicle operators' attitudes toward safety regulations, *The International Journal of Logistics Management*, Vol. 20, No. 2, pp. 278-293
7. **Fugate, Brian S.; Davis-Sramek, Beth; Goldsby, Thomas J.**(2009), Operational collaboration between shippers and carriers in the transportation industry, *The International Journal of Logistics Management*, Vol. 20, No. 3, pp. 425-447
8. **Grawe, Scott J.** (2009) Logistics innovation: a literature-based conceptual framework, *The International Journal of Logistics Management*, Vol. 20, No. 3, pp. 360-377
9. **Meixell, Mary J.; Norbis, Mario** (2008) A review of the transportation mode choice and carrier selection literature, *The International Journal of Logistics Management*, Vol. 19, No. 2, pp. 183-211
10. **Tracey, Michael** (2004), Transportation effectiveness and manufacturing firm performance, *The International Journal of Logistics Management*, vol 15, no 2, pp. 31-49
11. **Yang, Biao; Yang, Ying; Wijngaard, Jacob** (2005), Impact of postponement on transport: an environmental perspective, *The International Journal of Logistics Management*, Vol. 16 No. 2, pp. 192-204