SUPPLY CHAIN MANAGEMENT IN SHIPPING

1IORDANOIA FLORIN, 2IMASHOVA ZHULDULZ, 3KARZHAUBAYEVA ONAIKHAN

1Constanta Maritime University, Romania, 2,3Caspian State University of Technologies and Engineering, Kazakhstan

ABSTRACT

Supply chain management strategies began to be used in shipping for a short time. They will change the traditional concepts of liner or tramp, which are limited only to transport goods and less on what kind of opportunities they represent. The transition to this new concept will not be easy because the maritime market has a certain specific; the shipping companies are more interested in the price of a larger transport, in the cost reduction of the ships than in the direct affiliation to a supply chain. Some shipping companies are part of supply chains, even without involving in the strategies of the partners in the chain, having only transportation contractual relationship. In this paper, it will be presented and analyzed a number of situations in which the maritime shipping companies are. It will be presented a number of solutions for integrating maritime shipping companies in international organizations that require the existence of supply chains.

Key words: maritime transport, ship, costs, logistics, supply chain. JEL Classification: F23, L91.

1. INTRODUCTION

The global economic crisis has seriously affected many shipping companies because of the lack of goods for transport. Some companies have failed, others have sold some of the ships for scrap or "second hand" to get liquid and resist on the market. Other companies have managed to resist and to continue investing using a management adapted to the crisis on the maritime market. Searching and finding goods for transport became so important that maritime shipping companies are in constant search for them. For this reason, they use the most modern methods and techniques of management, marketing and communications to find the goods owners, senders and international buyers. In this context, each owner seeks to permanently preserve relationships with partners, even after a single contract of transport. In certain situations in order to keep the partners, they make voyages thus:

- With a very small profit.
- No profit.
- Even with a certain loss on a voyage or more made in a year.

A number of experts believe that the shipping offer is "slow and weighted" as a response to changes in demand, due to the fact that transport ships should require a long period of time for their construction, and this fact introduces a delay period in supply answer on demand,(Branch, 1998). After the ship was built, it has an operating duration from 15 years to 30 years, so it responds to a "falling demand" and hence an "endless" business, especially if there is a great surplus to be replaced. Over time, ship offer was controlled or influenced by four groups of people who are making the decisions as follows:

- Owners (ship owners).
- Charterers (goods owners).
- Bankers who finance navigation.
- Various national public authorities, trade unions and international organizations, which make the rules for ship and crew safety, environmental protection, profit distribution, etc.

In recent years it appeared and became very important nowadays a new category called "ship managers". These are the companies that take over or rent ships from owners, through a management contract and then use them to transport goods. This situation arose because "Ship-managers" have direct links and partnerships with charterers. They have succeeded in the past 10 years to attract the smaller owners, with a few ships, which are more vulnerable to changes in the maritime market compared to large companies with many ships. Another aspect which influences the maritime transport is the productivity ships and commercial fleets. Merchant fleet is defined by its size and the productivity of the ships used adds an element of flexibility. Specialists in the field carry out the research of merchant fleet according to (Branch, 1998):

- the number of ships,
- their size or capacity charge
- productivity with which ships are operated.

Over time studies carried out by various research institutes showed that ship productivity is variable (Nautical Institute, 1994). Analyzing the situation of oil tankers it was observed that the peak productivity was of 44,000 tons miles / dwt in 1972, but until 1985 it fell to 24,000 tons miles / dwt. It means that productivity decreased to half the initial value, followed by a 40% increase, to 33,000 tons miles/dwt. Productivity of bulk transport ships was much more stable at around 20,000-25,000 tonnes miles/dwt. The analysis of the nature of productivity changes for oil tankers revealed the following situations:

- Operating time: 137 days (37,53%).
- Navigation ballast: 111 days (30,41%).
- Landing and departure maneuvers: 40 days (10,9%).
- Other activities: 77 days (21,09%), which are represented by:
  - repairs
  - supply,
  - short or long term storage,
-navigation accidents,
-waiting time in harbor or berth,
-port authorities controls, etc.

The detailed analysis of ships activities helped to draw conclusions invaluable for ship owners and charterers. Thus, it was found that some of them are caused by physical and technical performance of the ships, but also by factors operating on the maritime market. The indicator to measure the productivity of merchant fleet is ton miles/“dead weight” [Dead weight = weight, “dead” weight that is without freight (money) or total carrying capacity of the ship]. Thus productivity depends on four important factors: speed of the ships; residence time in port; tonnage used fully or partially; travel time or travel days at sea.

At present, maritime shipping companies are seeking solutions to withstand the fluctuations on the maritime market. One solution is represented by the integration in a supply chain, where ships are engaged in permanent (line) contracts. Further in this paper it is made an analysis of the general situation of shipping companies in the context of overall strategies of supply chain management, following the value chain situation in shipping, forming strategic alliances in the shipping industry, distribution channel in this area, how establishing partnerships within the distribution channel and finally it is presented an overview of how to obtain financial performance.

To facilitate the understanding of supply chain management in shipping we carried out two studies. The first study was at a maritime shipping company that understood the role of supply chain and invested in this area. The second study, at a Romanian shipping company, but which has ships registered in another country, with the flag of convenience. The Romanian company does not belong to any supply chain. Scientific research in this field in Romania is still at an early stage. Even though there are many specialized works which seek what is happening in the international and European maritime transport and logistics, though they cover only a small part of situations and existing problems. Some more information and technical and economic papers have emerged in management and port logistics.

2. SUPPLY CHAIN MANAGEMENT STRATEGIES IN SHIPPING

After studying the situation on the sea, looking at what is happening in maritime shipping companies, it appears that at least a part of supply chain management strategies are currently being used. The need and the reasons of their use are known to specialists in economics, but the executives of the shipping companies are not based on management or marketing economic studies. They are usually naval officers who previously had leading positions as a ship captain or a chief engineer. This situation has some negative influences on how there are perceived the new ideas that appear in the specific doctrine, where they do not have access very often or they learn about them too late. This is the so-called “conservatism” of the managers of the maritime shipping companies, which still manifests at present, even with negative consequences. The leaders of large, strong, solid and proactive maritime shipping companies managed to understand the importance of supply chain management. And those from smaller companies have noticed what the large companies were doing, have copied some of the measures taken by them and adapted on the go or tried to adapt, to resist. But it is still not come to understand what “supply chain management” is globally or the world fleet management. Following the evolution of the concepts of this type of management, except that “supply chain management” is not a stand-alone strategy, that it must be an integral part of overall strategies of the company and especially of “the individual strategies which involve business partners of the companies” (Porter, 1980), maritime shipping company executives must understand the peculiarities of the strategies because:

-They generate competitive advantages for integrating the shipping companies and coordinating the flows of information.

-It comprises a variety of specific activities, especially those that involve successful completion of the command, i.e. the ship reaching the port of destination. This should be considered as part of the company's strategies.

-It uses a number of elements and specific ways, suitable to achieve the level of quality of service, at which the managers at least “adhere and aspire” through the implementation of the International Safety Management Code and international quality standards from the ISO series (International Organization for Standardization), to fit between the company's strategic activities.

3. THE CURRENT SITUATION IN SHIPPING

First of all, maritime shipping companies are interested in aspects of cost reduction, and then in value chain analysis, strategic alliances, distribution channels and obtaining profits.

A). Costs reduction. Over the last few years there have been noticed a number of measures that have been adopted by the management of shipping companies to reduce costs thus, (Iordanoaia, 2008):

- Changing organizational structure.
- Reducing staffing.
- Outsourcing of some services to certain specialized companies.
- Relflagging by registration in a country with lower taxes (tax heavens).
- Renting the ships to a maritime management company.
- Introduction of computer performance, modern communication technologies.
- Reducing consumption of materials and spare parts.
- Reduce consumption of fuels and lubricants by reducing ship speed by half.
- Postpone the processing of material costs, etc.

But most problems are related to ships and here there have been, are and will be in future the toughest problems related to costs. In the past 20 years companies have adopted a series of measures, some of them being very drastic, for cost reduction and over this period there were many conflicting situations because of this. The
first measure was to reduce the number of crew members. Thus, there were significant reductions from approx. 40-50 people in the early 80s, to 15-20 people now, their number varying according to the type of the ship (Teodor, 1998). The second measure was that the crew on board should take over a greater number of tasks, to increase their number, even with the risk of decreased safety of the ship (Stan, 2003). All the times, there have been disputes between owners, authorities and trade unions due to the increasing number of tasks of the crew on board. A very important measure was the introduction of modern computers, reducing the time of writing official documents issued by the ship, (Iordanoaia, 2006). Another important moment was that the modernization of communications between the parties as follows: ship and company management, ship and agents, ship and brokers, ship and port authorities, the company and third parties.

B). Value chain analysis in shipping. Value chain analysis in this area is different from that of the production of goods or provision of services in mainland due to the following reasons. (Iordanoaia, 2006):
- Decomposition process of transport is relatively simple and the entities contributing to the service are in a very small number as:
  - the ship, with its crew approx. 15-20 people,
  - general manager who holds the “key” business,
  - deputy managers, namely those responsible for the ship, logistics, technical and marketing approx. 4-6 people.
- Primary activity is the transportation of goods, containing loading and unloading the ship.
- Support activities are only those related to:
  - service provision quality control on board,
  - ship safety control, carrying cargo and shipping control,
  - ships’ supply,
  - human resource management.

The last two “support” activities can be outsourced to specialized companies that take over the company tasks and even if they help to increase the value of services, the activities don’t belong directly to the company. These are agency companies, for ships’ supply and crewing companies, for employing seafarers. Using the value chain for a shipping company, mainly, is not different from that of a land company. It consists of the following steps (Băcanu, 2006):
- decomposition process,
- costs distribution,
- identifying critical activities,
- identifying valuable employees,
- identifying links generating value,
- optimizing connections.

But all these have characteristics and features different from those of the processes from the land companies.

1). Decomposition process. Value generating activity is represented by loading the ship (Stan, 2003). When the contract stipulates that the loading / unloading operations to be done with the help of the board, the service will increase, but the share of such additional activity is quite low, practically only some types of cargo and Ro-Ro’s can be made, and some ships have no such possibility because of the way they were built and the abandonment of facilities onboard for these operations.

2). Costs distribution. For company shipping, the main costs groups are the following (Iordanoaia, 2006):
- Administrative and overheads costs of the company.
- Ship operating expenses.
- Decreasing value of the ships.
- Travel expenses.
- The loading / unloading of ships expenses.
- The expenses of the maritime shipping companies can be structured on groups’ costs as follows:
  - Ship operating expenses where the share is as follows:
    - 30-45 % crew expenses,
    - 20-30 % technical expenses,
    - 10-15 % insurance expenses,
    - 7-12 % maritime supply expenses and equipment expenses,
    - 4-8 % lubricants expenses.
  - Financial expenses which are given by the amount of taxes.

There are also a number of external factors that affect costs according to:
- Ship-type, if it is an oil tanker, chemical tanker, bulk carrier (bulk transport), cargo (general cargo transport), Ro-Ro (roll-on-roll-off) for car transport on wheels, etc.
- Area navigation, in inland seas (The Black Sea, Mediterranean) or the world’s oceans (Pacific Ocean, Atlantic Ocean).
- Hazards of the shipped goods, from the chemical, oil, gas, to weapons and ammunition.
- Insurance for the ship and crew, etc.

3). Identifying critical activities. The introduction of the International Safety Management Code has forced companies to draw up lists of critical situations that may arise on board and that can have its negative effects on commodities and crew (ISM Code, 2002). Avoiding critical situations is the responsibility of the crew, and of the other factors of responsibility in the company.

The Code required that a person at the company headquarters to respond directly to the ship’s safety issues, this person being “designated person”. The implementation of the Code and obeying its provisions means that, during one year, additional guarantees are made for the brokers (owners of goods), that their goods will reach their destination on time and keeping their commercial characteristics. Through the procedures used on board and kept at the company, it will be kept a strict record of all these potential critical situations.

4). Identifying valuable employees. This step is easier done in “tramp” shipping companies (the “tramp” ships which are waiting cargo in port, or in close areas), where brokers are those who seek cargo, bring charterers to the owners to sign transportation contracts, these being the brokers’ owner (called “shipbroker”). But charterer can use a broker to find appropriate transport ship, being called “Chartering agent”. Maintaining relationships with them is very important and their role in this type of navigation cannot be underestimated, sometimes being considered essential. On line shipping companies, valuable employees are treated as business partners with
who the company has entered into a contract of carriage on a long or very long term.

5) Identifying links generating value. In maritime transport, relations are among the most important, basically there is very little chance that a shipping company manages to resist on the market, without realizing a system of relations with partners and maintain these relationships. The existence of a supply chain, in which a maritime navigation company takes part, is the situation which would solve many of the problems faced by a shipping company, which is operating in a "tramp" market and would make the switch to line navigation, i.e. at a long-term partnership.

6) Optimizing connections. This step is accomplished through what is described as "naval operations management", which is conducted by maritime shipping company managers in connection with the company's fleet, with all ships altogether and according to the specific, with each ship. In order the connections to be optimized it is needed to prioritize activities as follows:

- Ship management considered the most important for company management.
- Supply ship, finding the best and cheapest supply solutions.
- Searching charter contracts, producers, exporters, importers or large international trading houses (called "traders").
- Search for the best trained officers and sailors, as a crew of professionals is an additional guarantee that a transport contract will be respected.
- Office management company, etc.

Hence, it is noted that naval operations management is "a transportation service, marketing and business management", "human resource management and administrative management". This is the reality of the current maritime shipping companies. Taking into account the facts presented in this chapter, the entry of a company in a supply chain would solve the most important issue of the ship owners and managers, namely that of having cargo to transport.

c) Making strategic alliances. This principle of logistics has become so important that it is considered that only the companies that are part of a strategic alliance can deal with the maritime market fluctuations, increased competition and have guaranteed business success. For a long time it has been known the fact that most of the shipping is based on a series of relationships established between ship owners and charterers and the search for cargo or ships is made available through brokers who can work preferentially with certain partners and bring the best transport offers to their "friends " ship owners (Bolero 2004). Partnership relations can be both in the product chain or channel chain, depending on the type of cargo or ship, in a medium term but especially in a long term. In some situations after close links with certain business partners there have been established new companies, holding shipping and logistics companies.

In this regard it will be presented the Japanese group of companies "Nippon Yusen Kaisha Group" (NYK Group, 2012). These partnerships cannot succeed without an open and direct exchange of information. So shipping companies and partners must communicate to each other all the operational and financial data, their forecasts and planning. General scheme of shipping alliances is shown in Figure No.1. Making strategic alliances is not easy in maritime transport as members of an alliance are, as a rule, companies in different countries, and these alliances are multinational by their nature. This is a goal that requires a lot of attention, coordination with suppliers and customers, full support from their own staff that will actually keep in touch with the partners. Alliance formation in the early stages will mean some expenses for training and operational support, but active involvement of company management, too.

![Fig. 1. Strategic alliances in shipping.](source: Florin Iordanoaia "Logistics shipping", Publisher "Nautica", 2006, p.135.)

Japanese group of companies "Nippon Yusen Kaisha Group is a model of maritime shipping company that understood very well the role of supply chain and made a series of investments to achieve such chains in different fields. The Group has the following organizational structure, (NYK Group, 2012):

1). Global Logistics Group, made by:
- Port-container shipping company "NYK Container Line" Ltd, with 120 ships.
- Ship-specific Navigation Company "NYK Hinode Line" Ltd, with 51 ships.
- Ports and port terminals owned in Japan, Asia, North America, Europe and Australia.
- Air cargo company "Nippon Cargo Airlines Co. Ltd, with 9 cargo planes such as Boeing 747-400F, 8 aircraft and one Boeing 747-8F.
- Logistics and business-centers by company "Yusen Logistics" Ltd, with a total of 332 centers in 36 countries.
- Road transport, with own trucks or rented.

2). Group of bulk cargo shipping companies (Bulk Shipping Business) comprising 5 shipping fleet as follows:
- Fleet of Car Transport, with 100 ships.
- Fleet of Dry Bulk Transport, with 205 ships.
- Fleet of Tanker Transport with liquid bulk goods, for oil products, chemical and LPG (Liquefied Petroleum Gas), with 78 ships.
- Fleet of LNG (Liquefied Natural Gas) Tanker Transport, with 28 ships.
- Offshore Business Group, two specialized ships, one for oceanographic research and one for submarine cable installation.

3). Group of Cruise Business, with 4 large cruise ships.

4). Real estate investment group (Yusen Real Estate Business), dealing with real estate development and leasing space to third parties.

5). Group of research and development, consultancy, education and employment of seafarers. The group has developed a research institute, environmental protection and quality assurance in transport, a maritime training center and a nautical college and in many countries it has branches for hiring crew (crewing companies). But, NYK Group is also part of the conference of a great navigational called "The Grand Alliance", along with two other major maritime shipping companies "Hapag-Lloyd Container Line" Gmbh in Germany and "Orient Overseas Container Line" Ltd in Hong Kong.

The advantages of strategic alliances for a shipping company may be the following:
- Reducing search costs for goods transportation.
- Improving operational process.
- Prompt response to customers’ orders, it means that they can provide for the charterers the required ships, even if they are not in their property. So do the partners in the alliance.
- Certain control of transport tariff for line ships and of freight ships to those of tramp, but that does not mean a monopoly, but cooperation and an increase of the economic efficiency.
- Increasing market share because the company becomes a supplier preferred by customers.
- Increase profits.

Shipping companies demonstrate how they can be full partners of manufacturers and retailers in the logistics supply chain. As the maritime market competition has become fierce, logistics began to play a larger role in customer service. But only those companies that will best foster strategic alliances with suppliers, shippers, brokers and customers can obtain higher profits than companies that do not consider such alliances.

D). Shipping channel distribution. The term "distribution channel" refers to commercial agreements concluded in order to ensure the flow of a product from point of production to final consumption, but the product and its ownership does not always go through the same route (Gattorna et al., 2001). Activities included in this distribution channel can be divided as follows:

1). Activities involving change of ownership of goods, trade channel, including:
- Negotiations
- Buying and selling.

2). Activities involving physical delivery of the product, physical distribution network:
- Road or railway transport.
- Storage
- Maritime and river shipping.

3). Ancillary activities to facilitate the first two types of activities:
Commercial channel is a variable of the mix marketing and therefore it is important that the marketing department of the shipping company should take over the initiative in designing and management of the channel, as it is in the middle of it, both physically and as a maritime ship owner which has an important role in this channel, under modern international trade. Service image, transport price and promotional efforts or partners search can be strengthened or endangered within the used distribution channel. This structure shown in Figure 2 is extended, but in many cases this can be simplified, because some of intermediaries can be eliminated, but there can occur any other intermediaries. NYK Group has several distribution channels, which control the transport, storage, loading and unloading goods, as shown in Figure No.3.

In this figure it is shown the supply chain for motor vehicles, produced in Japan and exported into the United States of America. In this chain there are the following partners:
- Car factory in Toyota City, Aichi region, Japan.
- Car carrier with specialized trucks, owned by NYK Logistics, from Toyota City, until port terminal in Osaka City.
- Port terminal in Osaka City.
- The ship for car transport "NYK Galaxy Leader".
- Port terminal in San Francisco, U.S.A.

As shown in Figure No.3, only "Toyota" cars factory and the importer from U.S.A. don't belong to NYK Group.

This situation is linked very well to "the concept of power" within the distribution channel relationships. This concept is defined as "representing the ability of a channel member to control the decision variables of marketing strategy of the other members of the channel, situated on a certain level of the distribution process" (Gattorna et. alt., 2001). In most channels it is known that there is or will be a leader. Traditionally this is being considered to be the manufacturer, who is the most powerful channel member, being called "the right leader" (Gattorna et. alt., 2001).

For comparison, it will be analyzed the situation of a shipping company with Romanian capital, the Romanian ship owner "Histria Shipmanagement" Ltd. Constanta, which has 9 ships such as oil and chemical tankers, with flag of convenience. This company carried unlimited cargo transport, at all seas and oceans. A distribution channel which includes this company is as follows, Figure No. 4:
- Exporter of crude oil, the national oil company of Libya "National Oil Corporation".
- Port operator "Socialist Company for Ports" Benghazi branch, Libya.
- Ship for crude oil transport "Histria Tiger".
- Port operator "Oil Terminal" SpA, Constanta.
- Carrier through pipes "Petrotrans" SpA, Ploiesti.
- Importer "OMV Petrom" SpA. Bucharest, for "Petrobrazi" refinery, Ploiesti.
But, from the analysis of the two cases it results that "NYK Group" can easily be a leading channel, even if it is not the manufacturer, and the company "Histria Shipmanagement" has a completely different position, taking into account the partners within the channel to which it belongs. So in shipping there are two situations that can change the "rules of the game", i.e. the leader could become the charterer (as an importer or exporter) or the owner. The real situation is given by prices (comparable rate) on the "tramp" market which are fluctuating. They have evolved over time, often unpredictable. The most important factors that influence the freight and its rate are supply and demand of tonnage. It is considered to exist the following situations (Branch, 1998):

i). When there is little cargo for transport it results that:
- there are many available ships in port or nearby,
- the rate of freight is low,
- the position of the charterer is strong, the market is generic called "of the charterer's".

ii). When there is cargo for transport but:
- there are less available ships in port or nearby,
- the rate of freight is high,
- the position of the ship owner is strong, the market is generic called "of the ship owner's".

On the ship owner market, there are very large variations of the freight; its evolution is very sensitive to the occurrence of political, economic or military events. But in the case of the shipping line, the ship owner position is more stable, the greater the business is and the more important the partners are. Of the two cases presented, it results the positions that they hold, the owner or the charterer, within the channel, depending on the amount of cargo and number of ships available. In this sense we can say that for shipping that which controls the "carriage charge" can control the distribution channel, meaning to be the leader. Hence, it results the need for cooperation and practically it ends the independent organization model of the activities within distribution channel, and of the traditional management of the years 1970-1990, from the international shipping.

E). Partnership formation within the distribution channel. Shipping companies that are strategically focused, in fact, recognize that interdependence relationship and not that of coercion or conflict, is necessary to achieve long-term profitability. Interdependence involves cooperation and establishes mutually beneficial relationships. Hence, it appears a question linked to the incentives that may cause a company to abandon opportunism and to adopt an approach based on cooperation within the relations of distribution channel. This incentive is offered to create added value, i.e. the process by which a product becomes more and more valuable as it moves inside the channel, from supplier to consumer (Gattorna et. alt., 2001). Shipping is a service whose value is influenced by customer and market circumstances which occur on the maritime market. This may explain the development of "express" transport, where the customer is prepared to pay an additional sum of money for fast and safe transport.

The improvement of the relations between distribution channel members can be achieved through marketing activities, carried out between partners in order to make a profit. Strategy implementation "marketing philosophy of partnership" consists of the following actions:
- Determining the effectiveness of distribution by checking it regularly.
- Reviewing agreements within the channel.
- Taking into consideration the changes that can be made to these arrangements.
- Implementing the marketing practices by selecting the members of the distribution channel.

Understanding the vision of other members of the distribution channel is essential for imposing a spirit of reciprocity and not one of polarity. Through this combination of forces, all members of the distribution channel can work effectively having a common goal, namely making a profit. For the partnership to be effective in the channel, the relations between members must be interdependent, not of domination or power (Gattorna et. alt., 2001). Thus there are many opportunities to develop joint marketing plans and to seek new business partners. But shipping has its specifics, different from that of the production or of the sales on the land. The main advantages of a maritime partnership are the following:
- Establishing a unique program delivery, such as "door-to-door".
function must use a set of indicators for measuring performance such as:

- Logistics, "just on time" type.
- Liability for damage to goods during transportation, which belongs to the ship owner, but in certain situations it belongs to the charger, too.
- Promoting common activities.
- Opportunities for negotiation depending on the quantities of goods that are available to be shipped.

Thus, partners have common goals and similar strategies to achieve them, but also a common means of defense against any element of intrusion in this partnership from any competitors, both on the maritime market and of the major trading houses, seeking monopoly or dominance in a particular market. Through the partnership they become allies, not enemies, who want long-term profits and not occasional gains.

1). Efficiency rate of assets use is considered to be the most important financial indicator for measuring profitability. After the use of this index, companies began to look for a number of companies providing logistics services in order to reduce investment in logistics assets. Through this, it was sought the reduction of the assets level and increase the value of the indicator.

2). Rate of return of the investments.

- Improved communication and electronic data exchange, with international standard and standardized and typed documents.
- Optimal conditions for developing trade relations.
- Favorable lending agreements with financial companies and with banks.
- Packaging of goods according to the type of ship used for transport, in order to optimize the amount of goods which needs to be transported by a ship available as soon as possible.
- Promoting common activities.
- Opportunities for negotiation depending on the quantities of goods that are available to be shipped.

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In the integrated logistics it is very important to establish strategic alliances with partners in this field, these alliances leading to obtaining financial performance which is essentially the ultimate goal of each ship owner and charterer.

- Establishing an optimal level of shipping service to eliminate incidental costs, to avoid situations of displacement of empty ships, without cargo and to reduce the time for current or capital repairs.

4. CONCLUSIONS

To reduce costs and increase profits in the supply chain which includes shipping, partners should consider the following issues:

- Individual partners' strategies must be designed taking into account those of all partners in the supply chain. Specifically, charterers and port operators must know the advantages and servitude of shipping in order to eliminate those negative aspects which influence transport, which delay the ship and which lead to losses for the ship owner.
- When a maritime shipping company formulates its management strategies and objectives for future must take into account its level of integration in the chain, but also those of other partners, because it is possible that each company individually, to be integrated differently or have different interests from those of the entire chain.
- Maritime shipping company should also aim to plan in detail how to achieve integration in the chain, increasing the speed of flow of information and of documents required for transport.
- Some maritime shipping companies that have many ships of different types, can have a certain advantage because they are covered in many supply chains systems on different fields: oil, gas, minerals, cereals, etc. In this way, the company can diminish the risks specific to business in the marine transport sector and at the end of the year to come out in profit, even if some of its ships did not contribute to it.
- Another important aspect is represented by the operational research, the one which has contributed to get some information and correct transport forecasts on the development of models and projects that were subsequently used for coordinating the flows of the materials and information within the supply chain. Nowadays, it appeared a large number of specialized electronic programs of shipping data and information storage. These programs can be used to find at least
theoretical solutions to existing situations. But even so, many issues and opportunities remain unused by ship owners, most related to marketing and finding customers.

Supply chain management has ensured its future in shipping, especially since it is still not very well known and it is still not working after its principles in many maritime shipping companies.

5. REFERENCES


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