

E-LOGISTICS – MULTIMODAL TRANSPORT MANAGEMENT

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Abstract. *The paper presents the role and the importance of logistics for products and services in order to obtain the competitive advantage. After a short presentation of logistics evolution, we move on to defining the logistics concept, respectively integrated logistics. The analysis of the logistics activities is based on the total cost concept and it has as a purpose the efficient and effective management of the physical flows of raw materials, materials and finite products, and of the international flows. The competitive advantage is ensured through the harmonization of the logistics function with the other functions of the company and through the integration of the logistics chain of all upstream and downstream organizations in order to ensure a high level of consumer service at economical costs under the farm of supply chain management. In the end we present the main tendencies in the evolution of logistics in the Romanian firms under the circumstances of the increase of their international dimension.*

Keywords: logistics, supply chain, supply chain management, competitive advantage, partner-ships, integration

1. DEFINITION AND CONCEPT DEVELOPMENT LOGISTICS

United Nations Convention relating to multimodal transport of goods adopted in Geneva in 1980 (Multimodal Transport Convention) defines multimodal transport as: carriage of goods by at least two different modes of transport on the basis of a multimodal transport contract from a place of a country where the goods are taken over by a contractor multimodal transport delivery to a designated place located in another country.

The rising cost of energy and raw materials in 1970 after concerns imposed to ensure efficient procurement of raw materials for production, to purchase raw materials at a low cost of production and implementation of programs related to the objectives of the market effectively. In this context one can speak of logistics and production logistics supply the materials management. Organizer functions (supply, production, marketing, finance, sales, etc.). Resulted in "*spreading*" logistics activities within different functions, the objectives of which there were many contradictions, which generated excessive costs or even losses.

Integrated Logistics based on the analysis of the total cost of logistics activities, with the focus level of service to consumers. This means that at a certain level of service consumers need to minimize logistics costs more than to try to minimize the cost of individual activities, components of logistics. Attempts to reduce the cost of individual activities may result in an increase in total cost. The concept of total cost of logistics activities must include: the level of service to customers, transportation costs, storage costs, cost control and computerization process, selling, manufacturing costs related quantitative.

Logistics comprises [1]: planning, implementing and controlling the physical flow of materials and finished goods from point of origin to their point of use, in order to make a profit and to satisfy customer requirements. The goal is to create logistics supply chains, namely physical flows of materials and finished products to final consumers with the lowest costs, knowing that their share in the total cost of the product is 30-40% for processed products. One of the most prestigious groups of specialists in logistics in the U.S., The Council of Logistics Management, uses the established term "*logistics management*", which he defines as "*the process of planning, implementing and controlling the efficient flow and storage bidirectional and efficient goods and services and related information between the point of origin and point of consumption in order to meet consumer requirements*"[2]. It is a general definition that manages to highlight the physical distribution management and delivery to customers, with the central objective needs of consumers, the profit motive, namely to ensure competitiveness. Stresses that this definition of logistics planning, implementing and controlling all three activities, and not just one or two, which rejects the views that support the logistics involved in implementing more than planning policies, thus ignoring the strategic function of logistics. Today, logistics has gone from so-called traditional approach focused on targeting to the point of consumption, the approach flow and storage inverse (reverse logistics) and those who are born at the point of consumption. Logistics "*reverse*" must receive more attention with the increasing profitability of online purchases.

The purpose logistics, as shown in the definition is "*to meet consumer demands*", which means that logistics strategies and activities must be based on the desires and needs of consumers rather than on the requirements and capabilities of other parties. This involves designing and managing an effective and efficient communication system, for businesses to communicate effectively with their customers to know their needs and wishes. All these aspects are very important, but should not be neglected component cost. In many businesses, the cost of logistics activities reaches or exceeds 20% of the total cost producers even reaching 50-55% of the cost of raw materials, which could turn into important logistics competitiveness through cost. The strategic dimension of logistics is underlined [3] and is defined as "*the process of managing in a strategic acquisition operations, movement and storage of materials, semi-finished and finished products, starting from suppliers across the enterprise and its distribution channels with the objective of maximizing profit and prompt resolution of customer orders*".

If we chain logistics activities in enterprises producing goods and services, we can highlight three important segments that interact with each other, i.e. supply logistics (logistics inputs), production logistics and materials management and logistics distribution. If we take into account the relationship with marketing logistics, given the marketing opportunities, aimed among others to maximize sales various market segments; we find that logistics is nothing more than a "*marketing oriented*". In this context we can say that logistics aims to achieve a level of service to consumers in terms of the five matches: the right product at the right place at the right time in the right quantity and at the right cost. The term "*appropriate cost*" is specific to the firm's logistics system. P.F. Drucker [4], with more than four decades ago, argued that improvements in marketing and logistics are an important way to obtain products at economical cost.

2. SUPPLY CHAIN MANAGEMENT - SCM

A general definition of the concept of supply chain of an enterprise includes all suppliers, production capacity, distribution centers, warehouses and customers with raw materials, semi-finished goods stock and the stock of finished goods and all resources and information involved in customer satisfaction. Synonymous terms are logistics network or supply network.

Another definition, more specifically, states that the supply chain is an economic process (business process) that connects suppliers, manufacturers, warehouses, logistics, distributors and end customers and has the form of an integrated collection of skills and resources aimed at service delivery and products to customers. In its classical sense, the term supply chain management (SCM) includes all coordination and management of all activities involved in the supply chain to achieve optimal performance. Currently, some analysts call these activities of supply chain operations, in an effort to better reflect the high degree of collaboration between the actors involved in this process.

In the context of the analyzed company, supply chain starts with suppliers and ends with its supplier's customers enterprise customers. Frequently, the supply chain is described with costs and revenues involved in each component:

- costs with suppliers/raw materials;
- transport costs;
- costs of production;
- storage and distribution costs;
- revenue from customers.

In the context of e-business, the importance of the chain of request (demand chain) covering order processing processes was reconsidered. Current economic conditions require firm's short-term goals, such as:

- reduce inventory;
- revenue growth while maintaining constant fixed costs;
- improved performance.

SCM applications manage forecasting applications, synchronizing supply with demand (requirement). Matching demand and ensures the ordered product at the right time. The concept of authors [5], which in turn cites the views of other authors, can be delineated at least possible functions of SCM applications:

- **planning** - is strategic area of supply chain management, which is defined resources management strategy for a particular business;
- **management providers** - developing a set of processes prospect of suppliers, supplier selection, purchase and payment of goods, monitoring relations with them;
- **manufacture/production** - scheduling, launching and execution of the production of the goods, if the company carries out production activities;
- **delivery and logistics** - coordinate receipt of orders from customers, the operation of a network of warehouses for cargo management, and so on;
- **returns management** - manage products returned by customers or by suppliers and customer relationships with various complaints.

3. BUSINESS INTELLIGENCE

Financial management is the kind of management that aims to provide permanent organization with the necessary resources and to exercise control board on the effectiveness of these cash transactions are involved.

Firstly functioning will be purchased fixed assets. Fixed assets include, in the case of multimodal transport contractor: buildings, land and equipment. The purchase of such goods is deemed to be capital expenditure.

Second, the resources to be used for the circulation current, or the current that are expected to be converted into cash or consumed in a period of 12 months and in a normal operating cycle. In the category of current assets of a multimodal transport contractor may be included, for example, fuel.

The third destination resource is for operating expenses which include: rent, taxes, pay subcontractors, insurance and payroll. Ensure adequate resources for operating expenses must be one of the major concerns of the financial management of a multimodal transport contractor.

Last destination resource is the establishment of reserves (provisions) that materializes cash resources readily usable by high liquidity to ensure the company's ability to meet special events - the so-called "*dark days syndrome*" reserves are also part of current assets. The funds thus distributed shall finance business for the agreed credit period.

In order to monitor and control financial performance literature is recommended to calculate two indicators. The first of these is the return on capital employed is calculated as a percentage ratio between net profit and total assets. The second is the commercial rate of profit calculated as a percentage ratio between net profit and sales.

We propose to calculate a third indicator that is called return on assets, calculated as the ratio between sales and total assets and expressed in lei showing how sales are generated by a lion in assets. The second aspect for prudent financial management, a multimodal transport company need to consider is solvency. Indicators that we would recommend for use are leverage and interest coverage.

Indebtedness is a relationship between passive and indicating the share capital and credit for multimodal transport company is calculated by dividing long-term loans to long-term loans aggregated with shareholders' funds. Interest coverage is calculated as the ratio between net profit and interest on the loan.

Finally, last but not least important aspect on which multimodal transportation company should focus is liquidity. The most important indicator that provides information on the situation in relation to available funds outstanding commitments of the current accounting firm is the index which is calculated as a ratio between current assets and liabilities due in the short term, less than 12 months.

Management structures have come to expect a powerful tool for measuring, monitoring and tracking of key business processes. Amid tightening competition, managers now need to solve complex problems, often insufficiently clearly defined, with implications for multiple plans. Whichever solution is chosen among the leading business intelligence functions include:

- Planning controls lifting and cargo delivery in time efficient working conditions, distance traveled and resources used;
- Automating logistics processes;
- Workflow management in real time;
- Optimal use of space charge;
- Monitoring performance indicators (KPI) and generate reports tailored to the organization;
- Interfacing with ERP, TMS, WMS, GPS (including SAP ®);
- Automatic route planning for all types of transport: retail distribution, LTL transportation, transport containers, intermodal transport, postal and courier services, transport tanks, vehicles, naval, air or mixed.



Fig. 1. Modules of Business Intelligence solutions

SCM package provides several modules for different functions in the supply chain - sales of companies that purchase this package, select and implement those that fit their business. Among these functions are:

- collaboration in the supply chain;
- collaborative design;
- collaborative achievements;
- demand planning and supply;
- production planning;
- event management in the supply chain;
- performance supply chain management, etc.

As for Romania, we must remember that the Romanian companies still operate in the manner classic traditional SCM solutions while recognizing the importance of effective business tool.

Some of them have implemented SCM solutions, but limited in number and functionality. In response to market needs, the solutions presented in most cases the modules integrated into ERP application, but also with connections to applications like SCM, CRM, BI.

4. LOGISTICS IN ROMANIAN INDUSTRIAL ENTERPRISES

In the last fifteen years, the managers of Romanian industry faced multiple problems caused by difficult economic instability, inflation, shortening product life cycles, environment, market conditions and diversification of demand. All this makes it difficult to find a way to organize the most effective and efficient logistics companies in general and in particular. Currently, there are industrial companies, primarily those with private capital, which have a timely and efficient logistics organization; however we can speak of an effective organizational structure of logistics in a few enterprises.

Concerns of integrating logistics activities under a single authority meet after 1990. Thus, we can say that companies who designed and developed logistics organization organizational structures were oriented primarily towards transport and storage activities that are included logistics managers control more than 70%, followed by the Order and delivery, inventory control and supply. In the large and medium-sized logistics function is headed by a manager to the position of Vice President or Executive Director. The introduction and development of logistics in the value chain of Romanian enterprises were made under the pressure of two forces, namely:

- Transition to a market economy, a process that Romanian firms subject to increasing pressure of competition, lower costs and eliminate competitors access to public resources leads firms to reduce capital requirements by resorting to logistics;
- Integration of Romanian firms in the global economy, especially taking performance of components and operations of the final products whose realization depends on participants located in several countries, requires discipline and rigor logistics contract enforcement [6].

Better internationalization Romanian logistics system allows businesses, primarily SME's, to exploit the opportunities offered by the development of international trade in goods and services, by exploiting the competitive advantage offered by logistics.

Currently there are a number of challenges facing the transport system and its development led to increased competitiveness and development in energy efficiency technologies. Thus, a more accessible transport system should be prioritized traffic management. Regarding freight for the whole transport system efficiency, in addition to encouraging projects aimed scheme applied to freight and developing new solutions for the delivery of goods, smart technologies and Intelligent Transport Systems (ITS) play an essential role in achieve the objectives of transport policies on developing an efficient, effective and sustainable.

The role of ITS is generated by the problems caused by traffic congestion and development of new information technologies in simulation for real-time control, communication networks, providing the opportunity to address issues related to urban traffic management in an innovative manner. Congestion reduces efficiency of transportation infrastructure and has a negative impact on travel time, pollution, energy consumption.

In urban traffic management and logistics are key factors underpinning the successful implementation of ITS and for involving stakeholders, development of partnerships, the application of essential tasks, optimize network performance, maximizing automation and minimize human intervention at the operational level

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