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RELATIONAL APPROACHES REGARDING FUNCTIONS AND PROCESSES WITHIN THE SUPPLY CHAIN MANAGEMENT

Gheorghe MINCULETE
Carol I National Defense University, Bucharest, Romania
minculetegh@yahoo.com

Polixenia OLAR
Carol I National Defense University, Bucharest, Romania
lisiolar@yahoo.com

Abstract
The effective management of the supply-delivery chain ensures the necessary quantity of goods and services where needed, at the right time, in the required quantity and at the best price. To this end, simply put, the supply-delivery chain is defined as an umbrella process under which products are created and delivered to the customers. The management of the supply-delivery chain ensures the improvement of the management of the fluxes which begin with the supplier of the supplier and end with the customer of the customer. There are Physical fluxes circulating between the partners who make up the supply-delivery chain, which are oriented from uphill to downhill (there are also physical fluxes oriented towards the financial fluxes which are oriented from downhill to uphill, and the fluxes of information which circulate both ways, preceding, accompanying or following the physical and financial fluxes). The current economic circumstances require from firms short term objectives, such as the downsizing of stockpiles, the increase of income combined with the maintaining of constant fixed expenditure, the improvement of performance. In the current article we briefly present, under a relational aspect, the functional structures or the components of the supply-delivery chain and some related processes which play a fundamental role in the effective functioning of partners interconnected in business processes.
Keywords: Supply chain management, Logistics management, The concept of logistic integrated management, Vice-president in charge of logistics, Value analysis, Efficient consumer response, Functions and processes within the supply chain management, Partners situated „uphill" or „downhill".

1. INTRODUCTION

Currently a growing number of economic activities take place at different levels of corporate management and, for this reason, it is vital to make sure that both operations themselves and the information system function at an optimum level. Reaching this goal requires an appropriate level of control, ensuring that both the activities and functions that were outsourced are monitored and

managed. Each of the participants, regardless of their role, adds new data in relation to the movement of the product along the supply-delivery chain. Information thus becomes increasingly important.

According to the Council of Supply Chain Management Professionals (CSCMP), SCM represents a complex mechanism which includes the ensemble of activities regarding the planning and management of all the activities involved in establishing the sources and acquisition of products, their conversion and the management of logistic activities. At the same time, SCM includes coordination and collaboration between business partners, lay the suppliers of products, intermediary channels, suppliers of services and customers for the integration and achievement of an effective management of demand and supply (Amrani, E.R., Rowe, F. and Maronna, B. G., 2006).

In Figure 1 we present an evolved model of SCM which presents both its full networking functions and some methodologies, applications and business practices - they are not developed in this scientific approach but in a future research work.

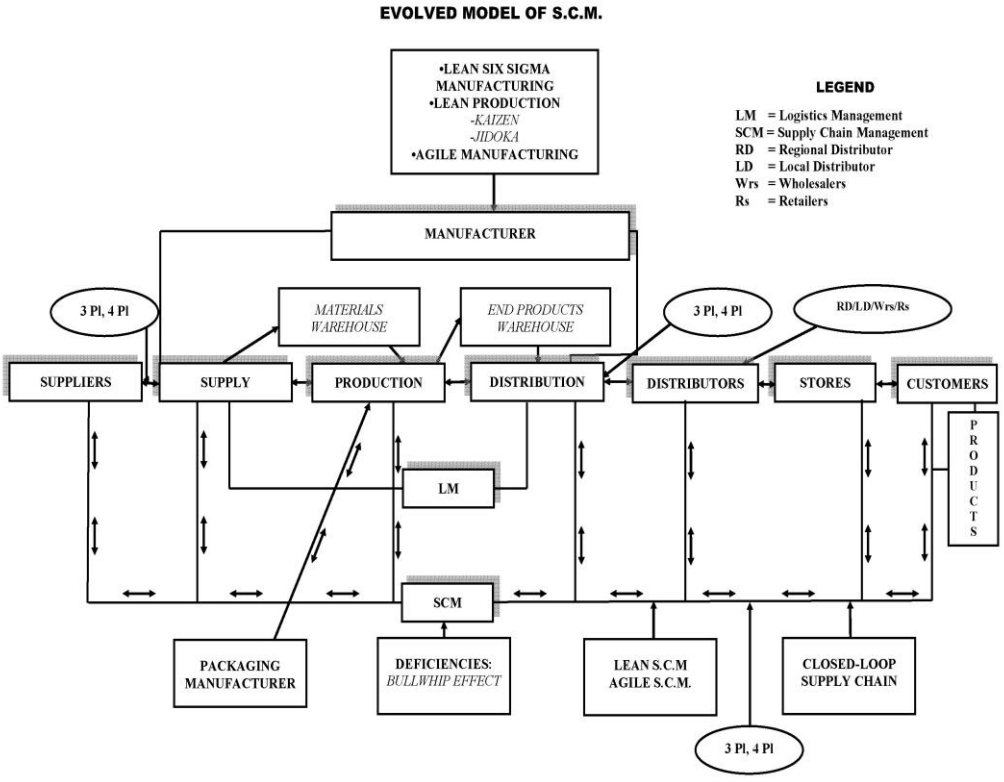

FIGURE 1 - DETERMINANT ELEMENTS OF MODERN SCM
Source: Authors' conception

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Among practitioners there still are confusions in understanding and differentiating between terms like SCM and LM (Logistics Management), in the sense that they often think that these two terms refer to the same things or activities. According to CSCMP, LM (Logistics Management or, briefly, Logistics) is a part of SCM which plans, implements and controls the efficiency of normal and inverse fluxes, the stockpiles of goods, services and information associated with them between the supply location and the consumption location in order to satisfy the requirements of the customers (Amrani, Rowe and Maronna, 2006).

According to the specifications provided by CLM, we notice a series of supplementary clarifications of the content of the *logistics managerial concept* resulted from the analysis of the limitations and relations with other functions and activities of the organization. The main underlined aspects are the following: the management of the third party providers of logistic services, planning and programming of production, the levels of applicability of the concept, the role of integrating function (Kotler, Armstrong, 2008).

More and more firms adopt and apply nowadays the *concept of logistics integrated management*. According to this concept, in order to offer goods and services that are more accessible to the customers and to reduce distribution costs, it is necessary to work as a team both within the firm, and also with all the organizations that are part of the marketing canal on the one hand, and with SCM on the other hand. To this end, the functional compartments of the firm will act in close cooperation in order to optimize the results of the organization in the field of logistics. At the same time, in order to maximize the results of the entire system of distribution, the firm will have to integrate its logistic system with those of its suppliers and customers (Amrani, Rowe and Maronna, 2006). In figure 2 we reveal the complexity of the mentioned logistic process (Minculete, 2005).

Also with the purpose of effective integration, specialists assert that SCM partner firms can also create management positions that link the logistic activities of the various functional domains. Thus, numerous companies have a *vice-president in charge with logistics* whose authority is inter-functional in the coordination of logistic and marketing activities, for the effective management of the activity of the supply chain (supply-delivery chain) for each category of products, in order to satisfy the needs of the customers at a superior level and with reasonable costs (Baily, Farmer, Jessop, Jones, 2004).

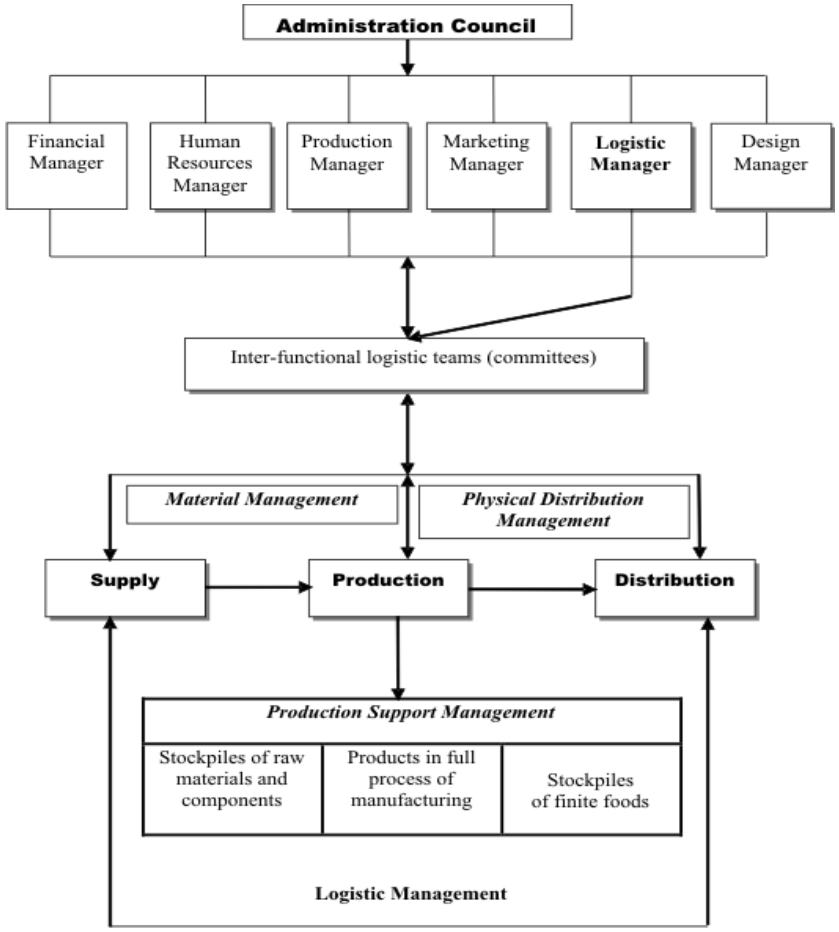

FIGURE 2 - LOGISTICS MANAGEMENT RELATIONSHIPS IN A COMPANY WITHIN SCM
Source: Authors' conception

Within SCM, the planning of actions according to functions is based on the correct, effective and profitable functioning parameters of each partner company. In the planning phase, the companies included in a SCM system must have in mind the elements of risk and uncertainty in founding their decisions regarding demand, foreign exchange rates and competition for the respective period of time. Thus, SCM partner companies must try to concretize the principles of flexibility in specific actions as early as the stage of drafting of business strategies and related plans, in order to continuously improve performance. At the same time, as a result of the planning phase, companies define for themselves a set of operational policies which govern short term operations (Chopra, Meindl, 2004).

Within SCM, the objectives of the logistic strategy of every partner company are closely related to satisfying the needs of the customers, which determines the drafting of that complex system which will minimize costs. According to our estimate, all possibly integrated components of a SCM system and the

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logistic managements subordinated to each company (in the structure) will lead to specific determinations of costs according to the formula presented below (Kotler, 2005).

$$Cs = Ci + FC + VC + LSC$$ where:

Cs = total cost of the proposed SCM system;

Ci = total costs implied by specific activities such as: selection of suppliers, acquisition, management of manufacturing fluxes, maintenance, transport, distribution, inverse logistics and so on within the proposed SCM system;

FC = the total amount of fixed costs of stockpile in the proposed SCM system;

VC = the total amount of variable costs related to stockpiles in the proposed SCM system;

LSC = total cost of lost sales due to average delivery delay, in the case of the proposed SCM system.

In order to choose an adequate SCM system it is required to examine the total cost (Cs) of each version of the proposed system and to choose the one with the lowest cost. If the evaluation of the cost of lost sales is difficult, the SC partner companies must individually set the goal to reduce to a minimum the sum Ci + FC + VC for a certain planned level of delivered services.

SCM has become lately a strategic element and an effective way to create value for the customer. Consequently, the role of SCM and the link between source, intermediaries, producers, buyers and users have become more and more important.

A key factor influencing the effectiveness of tactical logistic operations is represented by the strategic configuration of the supply-delivery chain, which has a long term impact on a firm. From this point of view, we appreciate that the objective governing all the efforts within a logistic chain is the increase in competitiveness by ensuring services accepted by the customers at a minimum cost. The improvement of services can be achieved in two ways: the development of integrations of organizations and the elimination of useless or costly activities; better coordination of fluxes.

The activities carried our within the supply-delivery chain (which generated added value) transforms raw materials and components in a product that is delivered to the consumer or user. Consequently, an SCM connects the various chains of value within itself.

The value analysis is usually applied to the entire supply-delivery chain. Any operation in the supply-delivery chain must bring value and, consequently, the obtaining of that value must be permanently

sought at a more reduced price. In reality, it is most often not difficult to determine the costs of each operation in the supply-delivery chain, but its added value (Porter, 1985).

Consequently, determining the added value is an important preoccupation, especially because a reduction of expenditure in one link of the chain can cause an increase in another, without this being necessarily something bad or unfavourable. On this principle forms of partnership between producers and distributors emerged, of the *Efficient Consumer Response/ECR* type, which require a close cooperation between all the participants in a supply-delivery chain in order to identify the possible improvements and who will support the new costs, but also who will benefit and to what extent of the resulting gains (Popa, 2000).

Through this prism, the management of the supply-delivery chain receives the task to integrate the operational units within it, to coordinate the fluxes necessary for meeting the requirements of the customers, in order to improve the competitiveness of the chain as a whole.

According to the data in the reports of one of the best known economic organizations in the world, the *World Trade Organization*, it results that in the economic field, beginning with 1995, we notice an unprecedented growth of the level of trade, a tendency which appears to continue in the following years. In this sense, it is appreciated that, in what the USA are concerned, the most important producer and consumer of mankind, over 58% of the raw materials necessary to the American industry comes from outside the country, compared to 12% in the 80s (Bittner, 2006).

We will briefly approach below the structures, functions and processes in the management of the supply-delivery chain, having in mind their specificity, as follows: *producers; suppliers; purchasing; management of demand; stockpiling; management of the flux of production and maintenance; management of distribution; transports; end consumer (user); inverse distribution* (Figure 1).

2. FUNCTIONS AND PROCESSES WITHIN THE MANAGEMENT OF THE SUPPLY-DELIVERY CHAIN

In view of producing/providing the goods/services required by the market, companies need to integrate themselves in supply-delivery chains. Thus, they economically relate with „uphill" partners, that is with the suppliers of raw materials, materials and providers of services, as well as with „downhill" partners, that is companies specialized in transport and distribution to customers (end consumers and users), as shown in Figure 1 (Philip, Lane, Keller, 2008).

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2.1. Producers

When we analyze the management of the supply-delivery chain, logistics and physical distribution, we are required to emphasize the fact that the latter concept, physical distribution, always begins in the factory. Managers usually choose a series of warehouses (points of stockpiling) and transporters who will deliver the goods to their final destinations, within the required time frame and at the lowest total cost. To this end, if we accept that the syntagm physical distribution is to be found developed at a superior level within the management of the supply-delivery chain, we must emphasize that this process begins a lot earlier than physical distribution.

Thus, the management of the supply-delivery chain mainly includes (Kotler, 2007): procuring the adequate process entries (raw materials, production components and means); their effective transformation in finished products; their delivery to their final destinations. A general perspective requires the study of the way in which the suppliers of the producer themselves obtain their production entries, many of them uphill on the supply chain, up to the level of raw materials. The perspective of the supply chain can help an economic agent identify the superior suppliers and distributors and support them in improving productivity, which in the end leads to the reduction of the costs of the firm.

Thus, within this functional mechanism, the suppliers in the supply-delivery chain become involved in the management of the stockpiles of the producing company, with which they have normal and legal business relations, by using the *supplier managed stockpile system* (Kotler, Dipak, Maesincee, 2009). To this end, the producing company transmits to its suppliers information with regard to the real demand, level of stockpiles, other elements of logistics etc. The obtained information allows suppliers to intervene at the right time to replenish stockpiles. This way, positive economic effects expected by the producing company appear, making reference to the reduction of: the duration of the production cycle, the number of hired personnel, the total level of costs. At the same time, precision within the supply-delivery chain increases regarding the concretization of economic fluxes: *inputs - conversion - outputs - distribution - full satisfaction of the requirements of consumers/users* (Kotler, Jain, Maesincee, 2009).

Logistics imply activities which can be grouped in two categories: *basic activities* and *support activities*. Only some of these actually belong to physical distribution; the others serve the supply and production support processes. The activities of the distribution logistics are: stockpiling, manipulation of products, packing, transport, management of stockpiles and order processing (Munteanu, 2008).

The physical distribution is concentrated on the transport of finished products and their stockpiling, from the place of production to the customers. The objective of the physical distribution is to meet and fulfil the expectations of the customers at lowest possible cost.

The logistic processes are often interpreted as acting on the flux of goods from their entrance in to their exit from the organization. In this sense, it results that the management of materials deals with the movement of goods in order to be received in the organization, the stockpiling of raw materials, components and parts which enter the conversion process (Figure2). From this point of view, it is estimated that the main objective of the management of materials is to ensure the pace of production in conformity with what is needed at the right time and place (Popa, 2009).

2.2. Suppliers

According to what was presented above, we wish to emphasize the fact that the supply-delivery chain covers, from a conceptual point of view, the entire physical process from the obtaining of raw materials which, after crossing all the processing stages, becomes a finished product to reach, according to demands, the end consumer (user).

In their majority, the supply-delivery chains are made up of several economic operators interconnected through the link the connection that each of them has in satisfying the particular needs of the end consumer. Differently put, the management of the supply-delivery chain represents a holistic approach of the functioning of an organization, being linked to its entire economic activity. Thus, we can assert that within the supply-delivery chain all the processes of obtaining raw materials or their extraction to its delivery to the consumer, both in the case of goods and services, are planned and concretized. In these circumstances, the management of the supply-delivery actions can also include the elimination of residue and refuse associated with the consumed product.

In the opinion of the specialists in this field, the management of suppliers and the quality of the supply have never been more important than in the present. In this sense, we believe that it becomes a necessity of maximum importance to select suppliers who can ensure the products and services needed by the SCM partner company, according to requirements, in full quantity and of a superior quality.

Selection of suppliers. In the economic environment, supply is an essential link in the cycle of development of a product, and the control over it is a compulsory requirement of the ISO 9001:2000 standard (chapter 7.4.1. „The organization must evaluate and select suppliers on the basis of their capability to supply a product in accordance with the requirements of the organization. Selection,

evaluation and re-evaluation criteria must be established. Records must be kept of the result of the evaluations and of any necessary actions resulting from the evaluation").

This stage requires the following: identification of suppliers capable of offering the necessary raw materials, materials and services; grouping of products that can be purchased from the same supplier; launching the requests for offers; evaluation of the offers received from several suppliers in accordance with certain criteria; selection of suppliers/offers (Goldfarb, Prescod, Charles, 2002).

The criteria at the basis of the selection of suppliers often are: *price*, *quality*, *conditions and terms of delivery*. Having in mind the fact that the share of expenditures with supplies in the revenue of a firm providing services is very high (it can go as high as 40%), a major objective of the purchasing activity is to find suppliers that can offer the lowest *price*; but this has to be correlated with *quality*, meaning that in fact we will have to pursue the obtaining of the best *quality – price ratio*. The costs of poor quality can be very high, especially if faults are revealed not at the beginning, but during processing operations or when the service is provided. In any case, the use of poor quality raw materials, materials or goods leads to poor quality products / services and a possible loss of clientele.

Another criteria for the selection of suppliers is linked to the *terms of delivery and their observance*, which are extremely important to the contractor in view of ensuring the operational flux and, not lastly, reducing stockpiles and associated costs.

The problematic regarding the determination of supplier selection criteria has as a starting point a pertinent analysis of the market, through which we seek to elaborate an effective strategy in accordance with the necessities and interests of an SCM partner organization, in order to take advantage from the competition on the market regarding the supply of products and services, followed by the taking of decisions regarding the selection of supplying sources and the process of purchasing.

Evaluation represents another important stage in choosing suppliers representing an instrument to orient the strategy in the field of quality of the beneficiary in order to meet in the best manner possible the requirements of the end users. The evaluation of the suppliers is executing by taking into consideration the form (method) of purchasing products and services as follows (Goldfarb, Prescod, Charles, 2002): to ensure the acquisition and delivery of the material resources to destination at costs that are as low as possible; prevention of over-stockpiling, but also of the lack of materials and products; allocation of reduced stockpiling spaces for stockpiling in small quantities and re-supplying at shorter intervals of time.

2.3. Supply

Supply represents one of the component activities of the commercial function through which the SCM partner company enters into economic relations with other companies. This process comprises the procurement and provision in a timely manner of the intermediary equipment and products necessary for the overall activity of the firm, the organization of appropriate stockpiling of the material resources and their distribution within the organization, the rational management of stockpile of raw materials, fuels and semi-finished goods.

As an SCM component, purchasing is indispensable to any productive economic organization and it becomes especially important if the material resources have a high ration in the production cost, when the number of items is very high or when the market for these items suffers serious fluctuations from the point of view of demand and supply (Chopra, Meindl, 2004).

The management of the supply-delivery chain includes, before distribution, the purchasing of raw materials, materials, fuels etc. Differently said, all the resources that are necessary for the production of goods by the manufacturer. It thus results that the purchasing part, about which we do not speak for the moment, is synonymous with the term *inbound logistics*, while *physical distribution* can be associated only with the term *outbound logistics* (Kotler, Keller , 2008).

Upstream the logistics of company primarily aims at supplying activity, which regroups all the operations that are available to the company, to its products and / or services that must procure externally in order to achieve its fundamental objectives. In essence, the supply activity includes the purchase of material resources (raw materials, materials, fuel, energy, water, spare parts, services) and the inventory of stocks (Lee, 2000).

Today the supply function, due to its financial impact on the turnover of the company is very important, which makes the directors of supply / procurement to be part of a tree branch management staff (Cachon, Fisher, 2000). Following the studies and analyzes, scientists have shown that 68% of the turnover of a company is dedicated to supply. In this respect, it is considered normal for the supply to be considered a strategic function of the company (Amrani, Rowe and Maronna, 2006).

Within the business profile the strategic role of supply is to be remarked, which is explained by earnings, which usually is 1% achieved through acquisition, often in terms of margin equivalent to 10% of sales (Table 1). In addition, if the supply function is positioned as guarantor of the quality of products purchased, it becomes more a profit center within SCM.

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TABLE 1 ELEMENTS OF ANALYSIS OF SUPPLY IMPLICATION ON SALES GROWTH

Analysis elements	Analyzed situation	The importance of supply - driven by lower supply costs Importance sales - driven by increased sales	The importance of sales - driven by increased sales
Sales	100	100	110
Expenditure on goods determined for sale	90	89	99
Supply expenses	50	49	55
Other expenses	40	40	44
Resulting benefit	10	11	11

Sources: Leenders, Fearon, Nollet, 1998; Donaldosn, B., 1998

According to what we have already stated, it is noted that a 1% reduction in spending supply has the same effect on a firm profits as the company increased sales by 10%.

In the current economic fluctuations conditions and in the increasingly competition, a firm with sales increasing to 10% is a hard to reach goal, while reducing supply costs by 1% is a more attainable goal. From here it results the strategic importance of supply activity within the firm and its implications on the overall performance of the company.

The purchasing process first requires the establishment of the needs to be satisfied and of the products to be purchased. The second stage is dedicated to the search for and selection of suppliers which will satisfy the expressed needs, while the third stage, more precisely the purchasing, represents the result of the confrontation between the supplier and the buyer. The last stage is the one that covers the period of time after the purchasing.

In accordance with the above, the main objective of the purchasing activity is concretized by the complete, complex and timely assurance of the SCM partner organization with the quality material resources and technical equipment, at the established time and place.

In order to achieve this objective, a number of specific activities are carried out, as follows: the identification and establishment of the volume and the material and energy structure necessary to carry out the activity of the enterprise within the planned parameters; the technical-economic foundation of the material and energy purchasing plans and programmes of the company; the estimation of the consumption of material and energy resources on the basis of a technical-economic documentation; the elaboration of material and energy track records which will highlight the way in which resources were used; the sizing according to economic criteria of stockpiles of material resources for orders and purchases; the prospecting of the internal and external

markets of material and energy resources in order to locate the real and potential sources to be used; choosing the material resources and technical equipments which best answer the characteristics of the consumption demands and which represent the most advantageous delivery conditions etc; choosing the suppliers whose offers present the most advantageous economic conditions and ensure certainty in future short and long term deliveries; the elaboration of adequate resource purchasing strategies in relation with the internal and external supply market; testing the credibility of the selected suppliers in order to emphasize their moral probity, the guarantees that they enjoy, their seriousness in business, their responsibility in respecting their assumed obligations and their solvency; the concretization of the relations with the chosen suppliers, which implies the establishment through mutual agreement of the terms of delivery; the operative tracking of the way in which the contracts of material assurance are carried out, the drafting of the charts of operative tracking of purchasing; ensuring normal conditions of reception of the materials arrived from the suppliers; ensuring the stockpiling spaces, the necessary furniture, the organization of the internal fluxes of circulation, choosing effective stockpiling systems, carrying out the operations to stockpile the material resources in the warehouses; the organization of the system of rhythmic delivery of material resources to the subunits of the company in accordance with the production programmes; the systematic control of the current stockpiles in relation with the established limits in order to avoid unfavourable economic consequences that can be generated by over-stockpiling or lack of materials on the economic activity of the enterprise and its financial situations; the tracking and control of the use of material and energy resources at the consumption destinations.

The typology of specific activities emphasizes the fact that the management in the field of material purchasing ensures the integration in a whole of the flux and control of material resources, as early as the moment when the process of purchasing is initiated and until their transformation into finished products.

For the normal running of the purchasing processes, specialty compartments are constituted under the form of divisions, departments, services, offices, according to the volume and profile of the activity, the form of organization and the size of the firm. Regardless of the form or system of organization, the purchasing activities are required to be carried out in accordance with the necessity to achieve the established objectives: the functioning in conditions of maximum efficiency, with the obtaining of the highest profit possible respectively.

The *forms of purchasing* that can be used by the resource consumption units are: direct purchasing from producer-suppliers; purchasing of materials and products through specialized wholesalers, which

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can take three forms: purchasing through organized transit; purchasing through paid transit; purchasing from the warehouse of the wholesaler.

The difference between one or another is done according to the way in which the following three activities are carried out: the organization and concretization of selling – buying relations between the factors participating in this process; delivery of products; the system of payment.

In the cases of purchasing through transit (*organized* and *paid*) the commercial intermediaries study the market in order to obtain information about the sales offers and demand for products in order to identify the producers and consumers who can become potential customers requiring their services.

The advantages of these forms of purchasing are: they shorten the period of time in which the contact between the producers and consumers of certain products is established; they ease the work of the producers and consumers studying the market; they can ease negotiations, as the commercial intermediaries better know the characteristics of the market.

2.4. Management of demand

The continuous changes in the business environment, the rapid technological changes, the growth of the interrelation between enterprise and the environment determined economic operators worldwide to elaborate previsions as a basis for taking operational decisions. These previsions are useful in determining the *needs for resources* (to be purchased), in *programming the available resources* and in *acquiring the resources that are necessary for the operative processes* (raw materials, materials, goods, personnel etc.).

The management of the supply-delivery chain includes among other important activities purchasing in itself, which includes contracting and the *launching of orders*. In the sense of the above, we wish to emphasize the fact that the process of management of demand represents a complex process carried out by the logistic structure of the company, which has as a goal the creation of the functional economic and legal framework necessary for the analysis in conditions of competitiveness of the offers required in view of purchasing material goods or services related to purchasing (Minculete, 2005). For example, for a salesman, the manager must foresee the number of customers, on daily and hourly intervals, so that he can have in the warehouse sufficient products, or personnel in the case of services, in order to ensure a normal flux of the sales activity and an effective management of stockpiles.

From the perspective of the vision on the materials in stock, the necessary personnel, the daily and hourly intervals, the manager must ensure the elaboration of forecasts that will ensure the maintaining of that specific activity at an optimum level from the point of view of lucrative effectiveness and efficiency.

The demands of the customers for a certain product or service usually describe sinusoidal curves in time (and also in space) under the influence of numerous factors. In order to ensure the elaboration of correct forecasts for a product or service it is required to take into account factors of influence like: the tendencies of evolution of the demand in known periods of time, usually as close to the time of the drafting of the forecast, the period of time for the demand of the product, the anticipation of certain changes of an economic, social, political nature (world financial crisis), which requires access to information.

Beside the known factors of influence, other elements can emerge which can contribute to the influencing of the process of launching of orders and which can not be anticipated. From this point of view, the skill of the logistic manager to act accordingly for ensuring the continuity of the approached process can contribute to the avoidance of substantial convulsions inside the system. From another point of view, beside the factors that influence demand, known and unknown, we wish to emphasize that the SCM partner company can also contribute certain measures in order to guide orders, in the sense of horizontal distribution among various partners from the supply-delivery chain (lateral exchange). These types of decisions taken at managerial level which contribute to influence the demand are known as being part of the management of demand.

2.5. Stockpiling

The stockpiling of goods is considered a component in support of the economic activity of SCM producing or distributing partner companies. The main activities related to the stockpiling of goods have in view the following: to establish the spaces needed for stockpiling; to choose the location of the warehouses; to establish the number of warehouses that are needed; to establish the layout of the warehouse; the placement of goods in the stockpiling spaces. With regard to its functionality, the warehouse can be defined both from an economic point of view, and also from a technical one (Bălan, 2007).

From an economic point of view, the warehouse represents the basic unit within the technical-material supply processes which comprise the totality of inventories of finished materials or products stored within the enterprise in view of the uninterrupted supply of sections and workshops and of ensuring the rhythm of deliveries to the beneficiaries.

From a technical point of view, warehouses are formed of the totality of buildings or areas especially set up, together with the machineries, installations and devices that are necessary for carrying out various operations, in order to store the finished materials or products (Bălan, 2007).

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The warehouse or distribution centre holds a key role in the logistic strategy of SCM partner companies. This usually is the point where the organization manages or fails to keep its marketing or sales promises. While in the field of management, production or finances sophisticated methods and techniques could be applied, the activity of stockpiling and distribution represents for the majority of firms the last chance to significantly correct flaws (Gattorna, 1999).

In order to best choose the optimum location for the warehouses of goods, a number of economic analyses and adequate mathematical determinations are required. To this end, a series of factors are analysed, such as economic and organizational elements, among which the most significant are: the number and location of the suppliers and beneficiaries of the goods; the volume of goods to be received and dispatched; the directions from which good are received and in which goods are dispatched; the distance that the goods have to cover from suppliers to the warehouse and from the warehouse to the beneficiaries; the conditions of dispatch and transportation of goods; distance from the main transport routes; the physical-chemical conditions for the storage and selling of goods.

As we can see, the majority of functions refer to the activity of movement of goods. In fact, if we take into consideration all the costs, except the costs of the stockpiles, the storage cost will only be between 20 and 30% of the total cost when the goods are received in boxes or packs of small dimensions. Consequently, a leap must be made from the concept of static storage in warehouses to that of distribution centres.

The *distribution centres* represent integrated distribution capacities which hold a key role in the logistic strategy of all companies in this field. In the opinion of economic experts, the distribution centre represents the location destined to the reception of raw materials, components or finished products, ensuring their storage and combined transport to (external) beneficiaries (Gattorna, 1999). If properly designed, planned, organized and run, a distribution centre can raise the level of services reducing at the same time the costs and the necessary stockpiles. This way, the competitiveness of the firm and also its market share increase, due to the superior quality of the services it provides.

If the initial purpose of the warehouse is to store goods and merchandise, nowadays it is well known that it represents a lot more than that: techniques of the *Just in Time Logistics* or *Efficient Consumer Response* can significantly reduce the task attributed in the past to the storing activity. For this reason, the term distribution centre is preferred to that of warehouse.

The strategic role of a distribution centre in achieving the overall performance of the firm shows how important the designing of the best system is, one which should also be efficient from the point of view of

costs. Unfortunately, the notions „the best and the most efficient from the point of view of costs" vary from one situation to another. The differences in costs for land, buildings, work force and transport modify the equation; also, the number of lines of products, the speed of movement of goods, the methods of supply and delivery can significantly change the design of the warehouse.

2.6. The management of the flux of production. Maintenance

In the conditions of the qualitative changes generated by the transition to a market economy and the rapid pace of scientific and technological advancements, the management of production represents an essential problem on the solving of which depends the level of economic efficiency and the degree of profitability of SCM partner companies.

In this sense, it is appreciated that the management of the flux of production / maintenance refers to the physical processes through which the companies take raw materials, transform them into products and then distribute to the customers (these being business partners rather than end users). It is thus a vital part of the economic process and it occupies an important position among the responsibilities of the general management.

The concept of management of production supposes the blend and usage in the process of production of material, financial and human resources in order to execute a certain quantity of products, of a certain quality, within established deadlines and with minimum production costs.

The management of production / maintenance usually approaches techniques which, if correctly applied, prove themselves useful and can be destined to check the efficiency of operations, the assimilation of new products and the expansion of the current production. At the same time, they can be used to correct a number of errors that manifested during the production process, for the introduction of new technologies, as well as for the implementation of measures that envisage the creation of a real advantage towards the competitors.

The activities specific to the management of production, and also to the maintenance related to the engaged means, will be focused on achieving two fundamental objectives. The first refers to the design of the production system and the second to the effective functioning of that system.

The design of the production system implies a series of decisions that refer to the performance requirements and the desired production levels of the system. We here have in mind the decision regarding the number of necessary machineries and their placement, the production technologies and the command and control methods that will be used.

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The functioning of the production system must be ensured so that the established performance criteria are fulfilled. We here envisage the planning and management of production, the tracking of stockpiles and quality control.

An important element to the managerial process in the field of production / manufacturing emphasizes the necessity to study the conditions for the occurrence of the specific processes. Thus, the experience accumulated so far proves the fact that in this type of activity we cannot establish patterns with long term validity, and the management has to be adapted to the specificity and particularities of a certain company.

The *management of the activity of programming, launching and tracking of production* envisages the process of transformation of the resources of the organization into products. In this definition, the *resources of the organization* are all the assets at the disposal of the manager for the achievement of products, *transformation* represents the series of steps necessary to transform the resources into products, and *products* are the carious goods and services that seek to satisfy human needs.

The *management of the activity to maintain and repair machineries*. One of the important domains of the management of the company is the maintenance of buildings, equipment and land. In this framework a special place is occupied by the machineries, on which the uninterrupted processes of production depend, the maintaining of production costs at a minimum level and the observance of the product delivery deadlines. Depending on the complexity of the operations, the manager can decide whether the execution of the repair of one certain machinery will be carried out within the firm or by another specialized unit.

The *management of the auxiliary and support activities*. The auxiliary activities comprise the working processes that ensure, from the sources belonging to the company, electric energy, heating, steam, water, in brief, energy resources.

As we have already seen, the *planning and programming of production* are integrated in the area of competence of the logistician. However, CLM used the syntagm „*in various degrees*" in order to illustrate the degree of involvement of the logistic manager in the field of production planning and programming. The reasons for the variations can be the absence of production / manufacturing activities in certain organizations, as well as the participation of the logistician as a member in various work teams, together with specialists from the field of production operations planning.

2.7. Management of distribution

The process of distribution represents an important component of the activity that economic agents carry out within the market. In this sense, the meaning of the term *delivery* (distribution) becomes obvious, which designates the ensemble of the means and operations ensuring that the goods and services created by the producing companies are placed at the disposal of the end users or consumers.

From the perspective of what has been presented above, distribution represents the process through which the goods and services are placed at the disposal of the intermediary or end users, ensuring for them the facilities of location, time and size, in accordance with the requirements expressed by them within the market. The means and operations designated through the term *distribution* are classified in two great categories: commercial distribution and physical distribution.

The *commercial distribution* is the transformation of the ownership title over the product from the producer to the consumer. The respective distribution can be ensured through distribution agents (operators).

The *physical distribution* is to place, from a material point of view the goods and services at the disposal of the consumers (users), with the help of transportation means and storage (commercial logistics).

In the sense of and related to the two syntagms presented above, the distribution network usually comprises the ensemble of all the individuals and companies participating in the selling of a certain product, regardless of its type, a product created by a producer in order to be put at the disposal of the end beneficiaries (consumers).

Producers and consumers are separated by distance, by the mutual ignorance of means and needs, by disproportions between the quantities offered by each producer and the requirements of each consumer, as well as by the periods of time needed to manufacture the produces and the moment when the needs manifest themselves. Setting out from these considerations, distribution has the role to regulate the movement of goods and services between production and consumption and to satisfy the needs of the consumers by providing a series of services such as: the proximity of the sale price, the possibility to choose from a large array of goods and services that bets correspond to their needs and requirements.

In order to achieve the necessary balance within the market by regulating the movement of goods and services between production and consumption, distribution comprises an ensemble of economic

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functions that are essential both to producers and also to consumers, allowing the flow of production towards the places of consumption in the best conditions possible.

For the producer, distribution operates a regulatory function of the manufacturing activity, allowing the producer to plan the production over the course of the whole year by placing orders in advance and by stockpiling, operations which annihilate the effects of season or conjunctural oscillations of demand, distribution participating in the financial efforts of the producers, by paying for the goods that are stored without having the certainty that they will be sold.

As a matter of fact, currently, the commerce with certain components that need to be delivered in a very short time (being essential to certain production stages) represents approximately 30% of the world manufactured goods trade.

2.8. Transports

Transports of raw materials, materials and goods. Choosing the type of transport represents a fundamental part of the management of distribution and it must be carefully analysed due to its impact on the operational efficiency of the SCM partner firm. Failure in identifying the most suitable type of transport can produce costs larger than the necessary ones.

The transport of material goods from the place of production to that of productive or non-productive consumption is an extremely important domain of the operative activities of the SCM commercial partner companies. At the same time, transport represents one of the essential activities of physical distribution and it is considered the most important component of the logistic mix, holding two thirds of the costs allocated to the logistic activity.

Transports, appreciated as an important sub-system of the system of production of materials and services, have an important role in ensuring the good functioning of the fluxes that form between the components of the system of production of materials and services within the SCM system, the system having multiples tasks in optimizing the economic time and space, in reducing the time that is necessary for the achievement of the production – delivery binomial (within the same system).

The transport of goods, being carried out in the sphere of production or circulation, determine the existence of two types of transports (within SCM organizations): interior, through which the movement in space from one section to another within the producing firm, within the processes of conversion is done; commercial, which is carried out by the specialized companies in and for the sphere of circulation of goods and services towards the end consumers (users).

The transport of goods, without producing material goods, produces usefulness, that is the spatial movement of products which are consumed during the production process, and an exchange value determined by the value of the live and material consumed work means, which are added to the value of the work object in transports (the transported material good). Having in mind this particularity of the activity of transports, we must mention that, in general, the management of transports has in view the execution of such transfers of raw materials, materials and goods from one place to another, from the supplier to the beneficiary, which must be achieved in a timely manner and with the most reduced costs that will determine an as small as possible exchange value.

The *transport costs* include all the costs directly associated with the movement of the product from one unit to another. The transport costs vary from less than 1% for equipment to over 30% for foods from the recommended sale price of the product, depending on the type of product and market. In any case, the average transport cost is between 5 and 6% of the recommended retail price of the product. The transport represents a cost directly added to the price of the product and any reduction of the transport cost will determine an increased profit.

Choosing the means of transport. The means of transport used must fulfil a series of conditions, of which we mention the following: regularity; transport capacity; rapidity; reduced cost.

Each of the transport systems used (rail, road, sea, air or special) answers in a specific manner to these requirements according to the technical-economic particularities of each of them. In these conditions, choosing the means of transport to be used becomes a problem whose solution continues to make possible the optimization of transports as a beneficial objective for increasing the competitiveness of the SCM system.

2.9. End consumers (users)

In conformity with the evolutions that have occurred lately within the supply-delivery chain with regard to end consumers (users), it is appreciated that its necessities have to lie at the basis of modern management in this field of activity. In this sense, the needs of consumers (users) usually represent the essence of the concept of management of the supply-delivery chain, of the profitability of the economic organization and its consequent development within the market economy from the point of view of the development of its capacity to satisfy the needs of the consumers (users) in competition with other economic operators in the same line of activity.

On the basis of their own business strategies and policies, companies will develop effective mechanisms and instruments to know, anticipate and satisfy the needs of the consumers better than the competition. At

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the same time, taking into account consumers and customers as sources of income for producers, it is appreciated that it is costlier to attract new buyers than to retain the existing ones (although keeping the latter is more difficult). From this point of view, it is obvious that by customer we define the buyer who performs several purchases to the extent in which the product being offered for sale simultaneously satisfies his requirements (needs) and produces his desired satisfaction.

One of the factors that influence the process of distribution within the supply-delivery chain is defined as the behaviour of the end consumer (customer). Thus, the study of this behaviour represents one of the directions of action of the managers of SCM partner companies, in their effort to contribute to the improvement of the organizational framework of the activities specific to each business function.

From the point of view of the SCM partner supplier, satisfying the consumer (user) represents the ultimate goal of his activities, because the consumer, through his choices, will influence the volume of the sails, the growth of the buyers' market, the obtaining of a favourable image on the market in the respective field of activity.

On the basis of the accumulated experience, it has clearly been proven along the human economic activity that consumers (users) are usually exposed to changes that have a different impact upon them (mostly negative). In order to be consistently protected, consumers (users) must be permanently informed with regard to what they wish to consume, otherwise the changes occurring in the socio-economic environment will permanently influence them, which proves their continuous vulnerability (Ungureanu, 2010, p.54).

For the optimization of the activities specific to the partners in the supply-delivery chain, we appreciate that, along certain suppliers, we must also always take into consideration the end beneficiaries (consumers and users), those who can influence in a larger extent than others the competitive advantage of the SCM partner organization (its distinctive competences) and with them adequate business relations must exist.

2.10. Inverse distribution

The inverse logistics are part of the supply chain which envisages the management of the product return (items in excess, loss of customers, physically and morally worn-out product, products that are hard or impossible to sell), unused packages, the recycling of dangerous products etc.

The growing number of regulations obliging firms to recover the defective products led to the appearance of systems of inverse distribution which manipulate the flux of recycled or defective products. The value of the withdrawn products and of the recycled solid residue which must be transported reaches billions of Euros or dollars. Furthermore, prognoses show that this phenomenon

will continue mainly because of the: rapid change in technology which requires frequent changes in the product design; new laws which are passed in the entire world and which require the withdrawal of defective products and the recycling of solid residue.

If logistics have different modalities of structuring depending on the type of products, the same thing also happens in the case of return logistics (copying machines, defective parts etc.). A first appreciation shows that return logistics represent in the USA approximately 3.5-4.5% of logistic costs. But this is only an average, the financial stakes of the return logistics being different depending on the distribution sector or canal. In the field of informatics, the return logistics permit the recovery of high value parts or components and the avoidance of the consequent pollution of the environment.

It is obvious that the main field in which the concept of inverse physical distribution is applied is the recovery of the product. The achievement of an inverse distribution process for an SCM partner company or for a product is difficult, especially since in many cases there is no systematic distribution plan. Additionally, many products reach the retailer and consumer (user) without a mark of the identity of the product or of the supplier. Locating these products and sending them back to the SCAM producer represents an extremely costly process.

Products can be withdrawn by an SCM partner company due to a variety of reasons: bad packing, bad labelling or inadequate distribution methods resulting in alteration or contamination. The degree of emergency of the withdrawal depends on a number of factors, the most important of which being the gravity of the risk posed by the product.

3. CONCLUSIONS

The systematic analysis of the market as well as the consumption necessities represent important preoccupations for the logistic managers, who can ensure the elaboration of viable strategies meant to satisfy the exigencies of the end consumers (users). In this sense, establishing firm contractual relations based on mutual trust and respect, of fair and principled relations with a series of suppliers who can ensure specific products to beneficiaries, in the required quantities and of the required quality, can contribute to the rhythmic and effective supply of SCM business partners, to the reduction of the stockpile of materials in the warehouses and their renewal at the pace required by the end of warranty or the coming out of use of the materials.

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The management of orders of products or services is often influenced by the requirements imposed by the interested company, so that, beside the shortening of the *command-delivery cycle*, the diminishing of the level of the stockpiles of materials in the warehouses, the growth of the level of flexibility and reaction and, last but not least, the ordered products reaching their destination in a timely manner and in the ordered volume and quality are also achieved. At the same time, the launching of orders imposes a detailed planning of the time needed by materials to reach the beneficiaries, in order to ensure the continuity of effort, the coordination of activities with the operators providing these products and the elaboration of detailed forecasts with regard to the internal and external factors which can influence the approached domain.

The benefits introduced in the activity of distribution of the SCM partner companies through the creation of warehouses organized according to destinations (types) of materials, levels and specific situations can ensure: flexibility, quality of the logistic operations, precision, work productivity, training of the personnel, work safety; growth of the profit margin; reduction of the errors of the system, discrepancies, accidents, warehouse costs, transport costs, transport needs and total personnel costs.

From the point of view of the business efficiency, the creation of distribution centres significantly reduces the number of sorties to the customers, and at social level their new logistic organization and that of the associated services certainly creates better work conditions for the personnel involved.

In the near future, by combining the means of transport important economic advantages can be ensured, each combination offering advantages specific to the means being chosen. Thus, combining the rail means with the road means ensures the necessary flexibility, being a much cheaper solution than the exclusive road one. From another perspective, if precise objectives are established at managerial level with regard to the transport sorties to be executed, the adequate transport routes will be chosen.

With regard to the evolution of the activities specific to the inverse logistics practised by the SCM partner firms, we are of the opinion that the development of this domain must take into consideration the main factors of influence determined by economic considerations (costs and benefits of the recovery of recyclable materials), the provisions of national and European legislations and, last but not least, the social responsibility of the central and local administrations, both at internal and European levels. Thus, due to the growing importance of this domain, the increased purchasing in the future of non-aggressive resources, the reduction in the use of raw materials, recycling, substitution of materials as well as the adequate disposal of residue could be ensured.

We finally appreciate that the mutations occurring in the global economy specific to the knowledge based society determines that more and more companies, including the ones on the Romanian market, become interested in being SCM partners. Thus, at international level, SCM represents for more and more organizations a competence that adequately connects firms with their customers and suppliers, for an adequate efficiency of modern and profitable business.

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