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Tadeusz POKUSA
Opole University,
Higher School of Management
and Administration in Opole

SUPPLY CHAIN MANAGEMENT IN THE LIGHT OF THE INTEGRATION PROCESS – THEORETICAL STUDIES

1. General

The achievement of market success is related to a company's assurance of its competitive advantage. It can be achieved, among others, on the basis of the development of new technologies, the efficient management of production processes or the launch of new products on the market. However, today such and similar measures do not appear to be sufficient. Forced to look for new ways leading to business success, modern corporations more and more frequently perceive the potential in logistics and marketing customer service processes in the management of supply chains, as well as in customers' satisfaction and loyalty. Thus, activities in this area are becoming one of the major objectives in many corporations applying modern management concepts. As is indicated by both the theory and practice in highly developed countries, such concepts are generally applied and bring about measurable effects. It turns out that an effective transformation of a corporation, *i.e.* its successful adaptation to new operating conditions, requires a strategic determination and attainment of objectives oriented towards processes, quality, value or time, which for some time have been conditions for not only long-term success but also the very existence of an organization on the market. Additionally, many corporations have understood that in the conditions of developing global competition the factual market success does not depend on their individual activities but on the strengths and dynamism of all partners who accompany them in delivering products to final customers. However, such thinking requires a totally new approach from a group of companies cooperating in a supply chain. First of all, it becomes necessary to eliminate many barriers existing so far between market partners; such barriers hinder the common management and coordination of the flow of products, information and financial resources in a logistic chain. Through the integration of processes and optimization of value added by all links in the supply chain to a product made for the final customer, a new model of cooperation allows the achievement of a high degree of effectiveness of all activities in the chain, ensuring simultaneously a considerable external efficiency of corporations making up the chain. Hence the need for a more thorough analysis of the concept of supply chain management.

2. The origin and interpretation of the category of a supply chain

The concept of supply chain management has developed as an alternative to a traditional way of perceiving relations between suppliers and recipients as constant antagonisms and attempts to take advantage of one's bargaining power. The source of theoretical and methodological foundations for this management idea was the results of research into distribution channels, cooperation between companies and system integration, which started to be published as early as the 1960s. Academics dealing with supply chain management sometimes even refer to publications from the end of the 1950s, and especially to articles by J. Forrester, who, studying flows of goods and information between suppliers and recipients, identified the problems of excessive inventories in suppliers resulting from a gradual increase in the number of distortions in information on slight changes in demand parallel to a growing distance from sale markets; this phenomenon was described as the "bullwhip effect" [Forrester, 1958]. Similarly, W. Anderson formulated the principles of and explained the advantages resulting from the maximum delay in the provision of services and the allocation of supplies to particular levels in distribution channels as a means of reducing risks related to customers' changing behaviour. At the end of the 1950s, the first analytical model of the allocation and control of supplies in organizations making up production and distribution networks was developed. Examining the possibilities of optimizing the costs of supplies and increased sales income as a function of the time of delivery, the author of the model, F. Hansmann, proposed the use of solutions based on dynamic programming [Hansmann, 1959]. However, it does not change the fact that the term "supply chain management" appeared for the first time in professional literature only in 1982, and originally it was associated with the reduction of inventories within a company and its partners. R. Oliver and M. Weber [Cooper, 1997] are credited with coining this term.

Nowadays the notion of a "supply chain" is one of the most important logistic and marketing terms, and professional literature presents its numerous definitions. Besides, there has appeared a certain number of terms used interchangeably with "supply chain" and identifying a supply chain with a logistic chain [Rutkowski, 2000, 12], a chain of supply, a homogeneous demand stream, virtual corporation or a broadened enterprise. In the light of the above, I believe it is necessary to carry out a clearer systematics of these notions. The term corresponding to the meaning of a supply chain is a chain of supply, which puts stress on the subjective perspective, and the difference – as I believe – results from a simple loan translation from the English language (*supply chain*). And a logistic chain, which puts stress on the objective perspective, is a warehouse and transportation chain which constitutes a technological connection between warehousing and reloading points by means of roads on which goods are moved, as well as the organizational and financial coordination of the processes of ordering and the inventory policy in all links of the chain [Gołembska, 2001, 19]. The term "broadened enterprise" puts stress on close partnership relations between entities making up such a "broadened" enterprise and the flow of logistic streams going beyond the legal limits of an individual enterprise. The term "homogeneous demand stream" has been introduced for the purpose of the reengineering of processes in a supply chain which consists in the coordination and simplification of the processes of the flow of logistic streams between entities making up a given chain. "Virtual corporation" emphasizes connections between entities included in such a corporation by means of information technologies and the fact that they share common risks and the market. The interpretations mentioned above have a complementary character: they do not diversify the gist of logistics or market orientation, but represent different methodological and instrumental approaches [Sołtysik, 2000, 30], stressing in each case their integrative character. Thus, authors interpreting supply chains from the perspective of logistics are, as a general rule, aware that cooperating enterprises perform tasks going beyond logistic functions (*e.g.* marketing ones), stressing, however, their key importance.

K. Witkowski defines "supply chain" as businesses cooperating in various functional areas and their customers among whom flow streams of goods, information and financial resources [Witkowski, 2003, 17]. S. Abt understands "supply chain" as activity related to the flow of material (goods) from its original source through all intermediate forms to the final form in which it is consumed by the final customer [Abt, 1998, 18]. K. Rutkowski claims that the essence of a supply chain is the achievement, thanks to integration and coordination, of a high degree of effectiveness of particular enterprises and of their network as a whole, as well as the optimization of value added by all links of the chain to the product expected by the customer [Rutkowski, 2002, 59]. According to M. Christopher, a supply chain is a network of mutually related organizations involved in various processes and activities, whose objective is supplying the final customer with a full range of products and services [Christopher, 1992, 23]. The integrative character is stressed by H. Pfohl [1998, 317], who defines it as a close cooperation among enterprises in a logistic channel: from the producer of raw materials to the final customer. D. Kisperska-Moroń [1999, 187] presents a more comprehensive definition based on both the integrative and effective characters. She believes that a supply chain is a group of related companies belonging to the same logistic channel, closely coordinating their efforts oriented towards the improvement of efficiency and competitiveness of the product on which a particular logistic channel is based.

Analyzing the essence of supply chains, one may not disregard the fact that in recent years this term has been often substituted with the notion of "supply network". In its pure form, the idea of establishing economic networks consists in competition and formal or informal cooperation among many companies characterized by considerable mutual trust and the absence of the relations of subordination. The notion of "supply network" is broader than traditionally interpreted supply chains, where flows are coordinated centrally and the dominant entity initiates the vertical integration of suppliers and recipients. According to the network theory, supply chains understood in this way can be considered as particular cases of a network consisting of the central and peripheral parts. However, accepting J. Jarillo's argumentation and being aware of the still modest theoretical foundations for network organizations, many authors make the assumption that both terms can be used interchangeably. An additional argument justifying the possibility of accepting the identity of these notions is a frequently quoted definition of a supply chain by M. Christopher or R. Lummus and K. Albert, who claim that it is a network of mutually related entities carrying out various processes, whose objective is supplying the recipient with a full range of products and services [Lumus, 1997, 19].

3. Selected definitions of supply chain management and their interpretation

Similarly to the interpretation of the notion of "supply chain", there is some confusion with respect to the definition of "supply chain management", because sometimes management is directly identified with logistic management. Some authors add directly that "for many people, the current meaning of SCM is slightly different from integrated logistic management, irrespective of how broadly logistics is defined" [Cooper, 1997, 4], or they write that "differences between the characteristics of logistic management and those of SMC described by authors are mostly unclear" [Copacino, 1997].

More and more frequently the literature on this subject presents the thesis that "supply chain management is the most accurate reflection of the integrated form of management" [Croxton, 2001, 13]. However, this opinion is accompanied by some doubts resulting from the fact that integration can be achieved in a supply chain, while frequently there is no understanding of a company's key processes [Helm, 2000, 392]. The Global Supply Chain Forum distinguishes eight basic processes which make up the structure of supply chain management, *i.e.* managing relations with customers, managing supply processes, managing customer service, managing demand, supplementing orders, managing production flow, managing returns, developing and commercializing products. This structure clearly defines the area of research for SCM, where integrated logistic and marketing processes acquire primary importance.

In the cult article entitled "Supply chain management is more than a new name for logistics" [Chandra, 2000, 11], the title itself implies the factual scope of research, because according to its authors "there is a decisive need to join business processes in supply chains, which goes beyond logistics". They add at the same time that the development of a new product and marketing research connected with it are probably the clearest example for this. R. Novack, L. Rinehart and M. Wells write about the necessity for "the integration of logistic functions in the whole company by combining the areas of production, warehousing, transport, physical distribution, as well as marketing and purchasing" [1992, 233]. The literature on this subject presents also ideas according to which "supply chain management, which so far has been dominated by logistic thinking limited to the management of the streams of product supplies and information accompanying such streams, should be synchronized to a greater degree than ever before with the marketing concept of demand stream management" [Hoover, 2001, 13]. L. Giunipero and R. Brand claim that SCM is a tool of the strategic management of business processes as a result of progress in logistics and product development in the areas of marketing and customer service. Obviously, such processes require appropriate integration [Giunipero, 2003, 29], the more so that, as M. Christopher suggests, "true competition is not businesses fighting with each other, but a supply chain fighting with another supply chain" [Christopher, 1992]. Other authors [Lummus, 2001, 426] write that supply chain management is not another name for logistics but a broader perception of processes including also an integrated information system and coordinated activities related to offering of products constituting a certain value for customers. Ch. Chandra and S. Kumar add that the essence of integration within SCM is the creation of a value chain with respect to the ability to forecast demand; while J. Johnson and D.F. Wood write simply that "supply chain management is a little bit more than logistics" [Johnson, 2000].

A very interesting view on this problem was presented by J. Stock [2002, 12]. In his article, he refers to the historic paper by T. Levitt entitled "Marketing Myopia", which exerted an enormous influence on the theory and practice of business. The philosophy and point of view presented by Levitt seem to have influenced and to be influencing logistics in spite of the fact that it was written over 40 years ago. The leading idea in Stock's paper is the thesis that "in some cases researchers have adopted a myopic point of view with respect to the perception of logistics which consists in the fact that in spite of concentrating on customer service, its factual field is still too much oriented towards the product". The author proposes a so-called "long-sighted point of view on logistics as an important process within supply chain management which, among others together with marketing processes, may bring about cost savings and competitive advantage. He adds that logistics and other functional areas in a company, including marketing, should be a "strategic ally" to supply chain management. He writes also that "the relation between logistics and marketing within a supply chain may be and should be, thanks to integration processes occurring within it, much deeper and the current state of affairs creates considerable opportunities for researchers", because the majority of work is limited to the specific parts of logistics such as, for example, transport, or the elements of the marketing-mix such as, for example, distribution. The author concludes that supply chain management comprising a wide spectrum of processes, among others logistic, marketing, production, financial and accounting processes, concentrates on providing the customer with the best value and encouraging him to look at the flow of a product from its source to the final consumer from a global cost's point of view. S. Fawcet and G. Magnan [2002, 339] write that "there are two critical situations influencing the success of SCM, *i.e.* the proper design of logistic and marketing processes as well as their integration within a supply chain. Hence, contemporary researchers and practitioners have a chance to become pioneers in overcoming barriers between the modern, integrated image of logistics or marketing and the traditional, dispersed one, within the framework of SCM. It is J. Stock's approach to the essence of logistic and marketing processes of customer service in supply chain management that the author of this paper agrees with, which seems to be confirmed by the analysis so far.

At this point another interpretation of SCM should be presented. It was formulated by Dick Back, the head of the trade union of British logistic specialists, at one of a series of international conferences organized by PTL Polska in Poznań. He said that supply chain management is an activity integration process starting with the identification of the customer's preferences and finishing with the acquisition of materials that could satisfy such demand. He purposefully emphasized the importance of consumers' decisions with regard to the development of a supply chain and consciously reversed the classically interpreted order of links in a supply chain.

The interpretations of SCM presented above could be called an "integrative school" concentrating its factual attention on the integration of a supply chain' s areas into a system defined as a set of processes whose objective is the creation of the possibly greatest advantages for the chain in order to multiply value [Kisperska-Moroń, 2000, 107]. Irrespective of the characterized differences in the definitions of supply chain management, its participants need to develop and accept the basic principles of its functioning and development. In the determination of such principles, the following criteria are of special importance:

– openness and trust, required while providing the participants of the chain with data concerning demand, sales forecast, production and order schedules, as well as other information related to the physical flow of goods and customers' behaviour;

– strategic cooperation, *i.e.* the common planning and execution of logistic and marketing processes in the chain with the determination of the place and function of its particular links, the processes of production, customer service and tasks related to promotional campaigns;

– mutuality, *i.e.* agreeing upon the share of risk and possible profits resulting from undertaking joint ventures, rejecting the practices of dumping inventory maintenance costs on suppliers or recipients, monitoring and optimizing the levels of inventories along the whole chain;

– control, especially with regard to the elimination of doubled and non-coordinated decisions related to the manufacture of products, transportation and warehousing activities as well as order processing [Xu, 2006].

Approval for the above principles of supply chain management should facilitate the settlement of disputes among suppliers, recipients and service companies. Their implementation may constitute a counterbalance for the source of such conflicts as competitive goals, the imbalance of bargaining power or decisions made on the basis of contradictory information.

As M. Christopher points out, four basic elements make supply chain management different from classical flow management. Firstly, a supply chain is perceived as a distinguished whole. Secondly, it requires strategic decision making. Supply becomes here the objective of practically all links in the chain, and its strategic significance results from the influence on the total cost of supply and a market share. Thirdly, supply chain management adopts a new view of inventories which become a mechanism balancing the supply system. And finally, supply chain management requires a special approach to systems; integration, and not just making contact points meet becomes a key activity [Kemppainen, 2003, 14].

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