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SUPPLY CHAIN MANAGEMENT IN RETAIL CHAINS

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ABSTRACT

One of the main trends in the modern economy is the strengthening of the position of retail chains, which is due, on the one hand, to the marketing requirement of maximum satisfaction of customers' needs at one location and, on the other – to the constant growth of retail turnover. Nowadays, the world's leading retail chains are among the largest corporations. This trend can be fully attributed to the Russian economy. In its turn, the enlargement of retail chains and globalization of retail trade require a significant reformatting of the supply chain management system. The purpose of the article is to generalize the conceptual apparatus of the supply chain management system in retail chains and to study the influence of the participants in the chain on the efficiency of its functioning and the methods of interaction between the links of the supply chain in a retail chain. In the course of the research, such research methods were applied as analysis of scientific literature on the problem of supply chain management in retail chains and an expert survey to determine the tasks facing retail chains in organizing supply chains, the main economic effects from the introduction of the supply chain management concept into the work of retail chains, the possibility of implementing supply chain management taking into account the principles of category management and the prospects for outsourcing the logistics functions of retail chains. Based on the expert survey, retail chain tasks in the organization of supply chains are defined; the main economic effects of implementing the supply chain management concept in the work of retail chains are identified; opportunities for implementing the supply chain management concept with consideration of category management principles are defined; prospects for transferring logistics functions of retail chains to outsourcing are established. As a result of the study, it was found that supply chain management in the retail network allows for integrated planning and management of information and material flows from suppliers of goods through distribution centers to the end consumer.

INTRODUCTION

The appearance of retail chains in Russia was caused, on the one hand, by changes in social and economic conditions during the 1990s and, on the other hand – by the logic of development of Russian business, including the introduction of marketing elements into company management [1-5]. The diversity of opinions of scholars makes it necessary to determine the place of logistics in the management of an enterprise, in particular, a retail chain [6, 7]. A retail chain provides for joint ownership of two or more trade facilities and taking part in decisions on their activities in a centralized manner [8]. Khokhlova [9] defines a retail chain as a new complex form of organization of interaction between economic entities, which provides for the unification of their resources and business activities to create additional competitive advantages in the market by implementing management decisions in the form of certain projects. Considering the specific features of the retail chain organization, we will consider the concept, principles, and methods of supply chain management (SCM). The concept of SCM is inextricably linked with the complexity of logistics operations in an integrated structure [10]. In this case, SCM is considered to be much broader than just a form of integration, which occupies an intermediate position between vertical integration and individual enterprises [11].

For the first time, the concept of SCM in industrialized economies was applied to trade and fast food networks, and eventually, it was spread to other industries [12, 13]. The term "SCM" was first introduced in the early 1980s by Oliver and Weber who proposed to consider material flows from raw material producers to consumers as part of an integrated strategy, calling it SCM [14, 15]. One of the first to provide an interpretation of the concept of SCM were Oliver and Weber, who considered the supply chain and its management as a scheme of direct thinking, i.e. management and control is carried out from the supplier, passes through the producer and distribution channels, and ends up bringing them to the consumer [16]. It is necessary to note that a considerable part of researchers who were studying the SCM were adherents of the direct thinking scheme, the so-called classical management pyramid (on the first place – interests of the producer) [17–19]. Among researchers, there are also supporters of the opposite, inverted management pyramid where the needs of consumers are put forward in the first place [20, 21]. Thus, Lambert and Polen give the expanded explanation of the SCM concept and focus attention on the consumer as the key element of a chain, i.e. the supply chain is represented as the scheme of the opposite thinking [22].

Another key feature of SCM is the concept of integration, as many scholars focus precisely on integration. Thus, Larson noted that SCM is a new approach to systems that require integration rather than interaction [23]. According to Ellram, SCM is the integration of processes, systems, and organizations to plan and control material flows from the supplier to the consumer without loss [24]. Panaydes [25] defined SCM as the coordination of production, inventory, location, and transportation among supply chain participants to achieve an optimal combination of efficiency and effectiveness of the market served. Beske et al. [26] understand under SCM the management of a network of mutual relations both within the enterprises and between the independent organizations and the business elements connected with material deliveries, purchases, production capacities, logistics, marketing, and systems adjacent to them, promoting formation

KEY WORDS

supply chain management, retail chains, supply chain, supply chain management of retail chains, category management, product category

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and flows of direct and return material, financial, and information streams from the original producer to the consumer with the reception of benefits in the form of additional value, maximization of profit for efficiency, and achievement of consumer satisfaction. At the current stage of the SCM concept research, the emphasis is on the fact that SCM is aimed at providing competitive advantages in the market. Thus, Waart and Peter [27] noted that the main function of SCM is to increase the competitiveness of a product or service.

The objective of the article is to generalize the conceptual apparatus of the system of SCM of retail chains; to study the influence of the chain participants on the efficiency of its functioning and the ways of interaction of the chain of supply links of a retail chain. The hypothesis of research: in a retail chain the SCM concept allows to carry out integrated planning and management of information and material flows from suppliers of goods through distribution centers to consumers. According to the research results, it can be concluded that the objective set in the research has been achieved.

METHODS

In the course of the research, the following research methods were applied:

- analysis of the scientific literature on SCM in retail chains;
- expert survey to determine the tasks faced by a retail chain in the organization of supply chains; the main economic effects of the introduction of the SCM concept in the work of retail chains; the possibility of implementing the SCM concept, considering the principles of category management; prospects for transferring logistics functions of retail chains to outsourcing.

In the expert online-survey, 50 experts, top and middle managers of retail chains responsible for the performance of logistical functions took part.

At the first stage of the study, the selection of information sources was carried out, including the opinions of researchers on SCM in retail chains (articles from peer-reviewed scientific journals indexed in Scopus and Web of Science over the past 10 years). At the second stage, we contacted 50 experts, top and middle managers of retail chains responsible for performing logistics functions. The selection criteria for the experts were the availability of relevant work experience of at least 5 years. E-mails were sent to the experts asking them to answer the questions of a semi-formalized questionnaire. At the third stage, the selected sources of information and the obtained survey data were analyzed and their interpretation was carried out.

RESULTS

Conceptualization of the main provisions for the implementation of the SCM concept in retail networks

Considering the specific features of logistics activities of retail chains, the experts formulated the following definitions. Retail chain supply is an ordered set of producers, intermediaries, suppliers, and stores of a retail chain that are united by a common goal and logistics operations to bring goods from one logistics system to another. SCM in a retail chain is the complex process of planning, creating, and controlling the material, information, and business processes in the supply chain to meet the needs of the consumers of a retail chain at the lowest logistic cost. Based on the expert survey, the main tasks faced by a retail chain in organizing supply chains were identified [Table 1].

Table 1: Tasks faced by a retail chain in organizing supply chains

No	Tasks	%*	Range
1	determination of consumer demand for goods	90%	1
2	minimization of inventories at warehouses, considering the sales volumes of products, primarily the products of active demand	85%	2-3
3	assortment policy of retail chain	85%	2-3
4	division of all goods into groups, and commodity groups into categories	80%	4
5	retail chain and assortment positioning	75%	5-6
6	price policy development	75%	5-6
7	merchandising optimization	70%	7

Note: based on the expert survey; * — the percentage of expert references

According to the majority of the experts (80%), the introduction of the SCM concept is associated with the development of new organizational and functional schemes of the interaction of all enterprises, and their participation in the chain is one of the decisive factors in maintaining and improving income levels and competitiveness in the market. Based on the expert survey, the main economic effects of the introduction of the SCM concept were identified [Table 2].

Table 2: Efficiency of the SCM concept introduction in a retail chain

No	Directions to increase the efficiency of retail chain activity	Sources of improvement of retail chain efficiency	%*	Range
1	Increase in sales and corresponding order volumes.	Improvement of planning quality through unified information channels	90%	1
2	Decrease in companies' current and insurance reserves.	Improved operational management through continuous monitoring of the entire chain, timely identification of deviations and malfunctions	85%	2
3	Decrease of risks, increase of probability of performance of planned indicators of sales and deliveries.	Reduction of product delivery costs by eliminating business processes associated with uncertainty in procurement, warehousing, and sales	80%	3

Note: based on the expert survey; * — the percentage of expert references

Using the concept of category management in retail network SCM

According to the majority of the experts (85% of the respondents), it is reasonable to carry out interaction and mutually beneficial cooperation in the supply chains of retail chains considering the principles of category management. The basic concepts of category management are the rules for forming the product range and maintaining the necessary level of commodity stocks to maximize the demand of consumers. The stages of implementation of the category management are the following: the selection of categories, the definition of category meaning, category evaluation, setting goals for categories, selection of the category strategy, the definition of the appropriate tactics, implementation of planned actions, and analysis of results. The experts proposed to use the basic principles of category management and assortment management to strengthen integration between the main links of the supply chain of retail chains. This requires a comprehensive analysis of the assortment, which will result in the division of goods into groups. In the future, a strategy for the management of selected commodity groups based on SCM principles will be developed.

The basic indicators of the analysis of an assortment policy are profit and commodity turnover. However, in the experts' opinion, it is necessary to analyze these indicators simultaneously. The growth of the actual volume of turnover cannot always be regarded as a positive trend. The turnover is a value expression of the mass of sold goods and, as any value indicator, is directly influenced by the price factor. This means that for the development strategy of the company, it is important to evaluate not only the profitability of goods but also the structure of the range of the most profitable goods. The majority of the experts (70% of the respondents) believed that, for this purpose, it is appropriate to use the method of ABC-analysis to calculate the contribution of each commodity group to the turnover and profit of the enterprise. The method of ABC-analysis is based on the concept of category management, which involves the formation of the enterprise's assortment based on the study of consumer needs and demand.

According to the concept of category management, the formation of the assortment is carried out following the principle of the joint consumption of goods. Therefore, the value of efficiency of inventory management in stores increases, which can be achieved through the method of ABC-analysis. Based on the results of the analysis, assortment positions are ranked and grouped depending on the size of their contribution to the aggregate effect.

The results of the ABC-analysis should be used for drawing up assortment matrices of retail chain stores, plans for merchandising activities, and determining the terms of cooperation with suppliers. In practice, the specification of product items is not reasonable (as the assortment can reach 8,000 names), therefore, we will first analyze it at the level of product groups: A, B, C. However, the commodity groups occupying an insignificant share in turnover can bring simultaneously high profit. Therefore, to better characterize the assortment, it is advisable to conduct the ABC-analysis on the contribution of each commodity group to the profit. The method of ABC-analysis allows one to classify the assortment in more detail and provides additional advantages in making managerial decisions. For better and more detailed classification, it is necessary to combine the analysis on the contribution of commodity groups in profit with the analysis on the contribution to the turnover.

Such proportions are offered by experts for a retail chain [Table 3].

Table 3: Distribution of goods by group by turnover/profit

Product group	Characteristics	Group requirements
Group A	very important products that deliver 75% of results	should always be available on the shelves of the store, i.e. security stock should be created, require detailed planning, continuous record-keeping, and control (more frequent inventory, control, etc.)
Group B	goods of average importance, bring 20% of the result, have moderate	it is necessary to have sufficient safety stock for the products of this group. Recording and control

	sales volumes, complement the assortment of the trade enterprise, allow attracting new customers	at the same level as for group A goods, but some omissions are possible (e.g., less frequent inventories)
Group C	least important goods; produce 5% of the result, have low sales volumes	the products that are to be excluded from the assortment or new products, it is necessary to order them with caution, set a small surcharge, organize measures to promote sales. If the goods are not transferred to another group after the promotion, it is necessary to dispose of them

Based on this methodology, nine groups can be identified, considering different combinations of ABC-parameters. In our case, the turnover parameters of commodity groups and their profitability have been combined [Fig. 1].

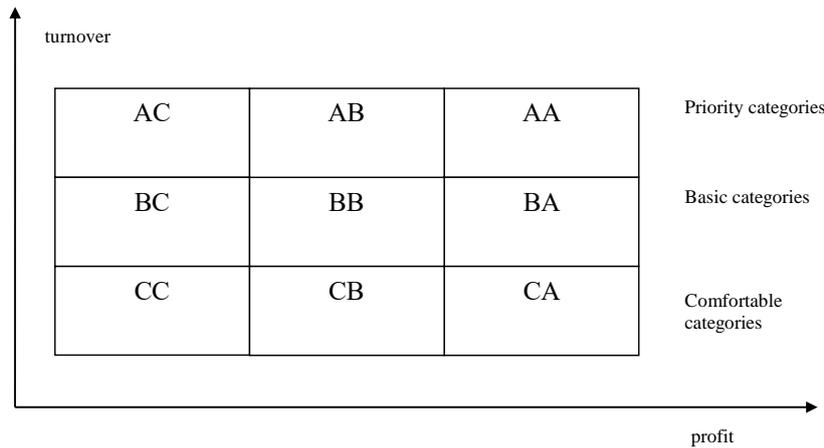


Fig. 1: Combination of the matrix fields by turnover and profit

The main purpose of the ABC-analysis is to ensure a balanced range of products in stores, considering the turnover and profitability of each item. In this connection, it is proposed to form an assortment considering the objectives of product categories [Table 4].

Table 4: Objectives of product categories

Product category	Objective	Recommended ratio in an assortment
Unique	creating and maintaining the image of the store, impulse purchases, creates competitive advantages	1-3%
Priority	maintaining profitability and attracting the main flow of customers, determines the overall specialization of the store	20%
Basic	maintaining high turnover and attracting the main flow of customers, forms the basis of the store assortment	40-60%
Periodical	assortment renewal, attracting and retaining customers	Up to 20%
Comfortable	ensuring a constant flow of customers, the complexity of the purchase, convenience for the customer, auxiliary goods	5-10%

Note: based on the expert survey; * — the percentage of expert references

Based on the expert survey, the main principles of building relationships with suppliers depending on the category of supplied goods are given in [Table 5].

Table 5: SCM depending on the category value

Product category	Level of cooperation with the supplier	Features of the goods delivery process
Unique	High/medium	<ul style="list-style-type: none"> - establishing partnerships with suppliers; - ensuring the permanent availability of goods in this category for sale; - carrying out joint actions with suppliers to stimulate sales; - creation of an insignificant safety stock; - the reserve supplier; - residue control.
Priority	High	<ul style="list-style-type: none"> - careful selection of suppliers; - establishing partnerships with suppliers; - joint information system with the supplier; - study of demand fluctuations; - frequent inventories, monitoring of inventory data;

		- low safety stock; - a reserve supplier is possible.
Basic	High	- partnerships with suppliers; - joint information system with the supplier; - a stock with a small surplus; - residue control; - reserve supplier.
Periodical	Low	- custom delivery; - reserve suppliers; - prompt delivery; - control of commodity balances; - conducting joint sales promotion activities with suppliers.
Comfortable	Low	- fixed order; - consignments with an extended delivery interval; - a small safety stock.

Note: based on the expert survey

To avoid shortages or surplus of goods, it is proposed to forecast sales and control fluctuations in consumer demand. A detailed analysis of inventories will help to determine the optimal supply consignments, balance order cycles, and reduce logistics costs.

Using outsourcing in retail network SCM

According to the experts, three management models currently exist and are actively used in SCM in retail chains:

- an organized (debugged, centralized) SCM model;
- an unorganized (decentralized) SCM model in retail chains;
- a cross-docking SCM model.

According to the majority of the experts (75%), the most common way to manage logistics chains is to manage them in an orderly and well-organized manner. In this case, the company creates its own distribution center, and management is carried out through a separate link in the logistics chain. Otherwise, logistics functions for the distribution of goods are transferred to a logistics operator – outsourcing of logistics functions. In the case of this management method, according to one interviewee, "transport costs are reduced, the cost of storing goods in the network is also reduced, and suppliers lower prices for goods by reducing transport costs". Outsourcing of any retail chain process always implies an economically sound solution, since the main idea of outsourcing is trust and transfer of responsibility for material and nonmaterial values. When transferring one or several logistic functions for outsourcing to a logistic operator, it is necessary to realize that control over the performance of these functions belongs to logistic operators.

Based on the expert discussion, an algorithm for managing logistic chains using outsourcing of logistic functions was developed. At the initial stage, it is necessary to evaluate the competitiveness of a retail chain and find ways to improve it. If a retail chain loses its competitive advantage among other market players, it is advisable to increase competitiveness through effective management of logistics chains. In this case, a retail chain may turn to internal project development or use the services of logistics operators. When deciding to outsource logistics functions, retail chain managers weigh all the advantages and disadvantages of their performance of functions and the advantages of delegating logistics functions.

At the next stage, there is an issue of transferring logistics functions and processes to outsourcing, identifying problems and goals of transfer, and planning the transfer of functions to outsourcing. As a result of the decision on the transfer of logistics functions to outsourcing, it is necessary to conduct a detailed analysis of problem areas. Considering this, it is expedient to focus on the identification of the main reasons which promote the transfer of logistics functions to outsourcing. The experts have identified the main reasons and motives for outsourcing and the refusal of outsourcing [Table 6].

Table 6: Main reasons and motives for outsourcing logistics functions and refusing it

No	Reasons and motives for outsourcing logistics functions	%*	Range
1	willingness to stay focused on core activities	90%	1
2	necessity to reduce the costs of doing business	85%	2-3
No	Reasons and motives to refuse to outsource	%*	Range
1	economic disadvantage of the transfer of certain business functions	80%	4
2	uncertainty in the professionalism of the potential contractor	75%	5-6
3	potential leakage of confidential information	75%	5-6

Note: based on the expert survey; * — the percentage of expert references

We believe that the reasons for refusing to outsource are evidence of an underdeveloped market for outsourcing services, as well as the fact that some enterprises for certain reasons do not adapt to modern methods of logistics chain management and do not search for new forms of business management.

During the next stage, it is necessary to assess the alternative to outsourcing, so it is required to carry out a detailed analysis of all the functions of transformation in time, space, and organizational structure of management and select criteria for the effectiveness of the outsourcing project.

It should be noted that as a result of changes in society's needs, the requirements for SCM have also changed. According to Holdorson and co-authors, the statement that SCM is primarily responsible only for procurement management, as well as order and information flow management, is not relevant, because modern customer orientation and increased social responsibility dictate new requirements. Researchers believe that today, all additional aspects, such as the improvement of customer service, reduction of risks in the supply chain, reduction of waste, better design of goods, and better service of goods, are considered as integral parts of SCM [28].

The modern SCM concept is widely used in most economically developed countries as it is an effective tool for doing business. SCM provides such opportunities and benefits as:

- cost reduction, contractual discipline, and increased management efficiency by transforming an existing linear, consistent supply chain into a reactive supply chain;
- improvement of product quality and customer service throughout the supply chain by integrating the business processes of development, delivery, and production and distribution support to all participants in the supply chain;
- achievement of customer focus of business processes and their openness to sharing knowledge among business partners;
- reduction of time for entering the market and elimination of costly mistakes and unsuccessful initiatives through close cooperation in the field of planning, organization, motivation, and control throughout the supply chain [29, 30].

CONCLUSION

The concept of SCM can be seen as a systematic strategic approach to ensuring the effective movement of material and corresponding information flows in the supply chain, the objective of which is to improve the performance of supply chains and, as a consequence, the participating enterprises. The application of the SCM concept provides an opportunity to better satisfy the needs of customers and achieve the objective of a retail chain by presenting the individual elements of the supply chain connected in a single integrated process. The application of the SCM concept also ensures the effective management of not only processes within a retail chain but also increases the efficiency of partner companies, because the delivery is carried out at the right time, at the right place, in the right quantity, and of the right quality, which together increases the efficiency of the entire supply chain. The results of the study confirmed the hypothesis that the SCM concept in a retail chain allows for integrated planning and management of information and material flows from suppliers of goods through distribution centers to consumers. To sum up, we can say that there are several approaches to SCM in retail chains. The models, methods, and principles of SCM of retail chains show that, in modern conditions, centralized management becomes more competitive and widespread. The development of retail chains now depends on the effective SCM of retail chains as a factor of success in a competitive environment. Analysis of the impact of SCM on the competitiveness of a retail network may become a prospect for further research.

CONFLICT OF INTEREST

There is no conflict of interest.

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#English translations of the references are presented.