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**SECTION 31. Economic research, finance, innovation, risk management.**

## GENESIS OF THE CONCEPT OF SUPPLY CHAIN MANAGEMENT

**Abstract:** *The management of modern supply chains allows to reliably controlling the goods, as well as information and financial flows interconnected with them, from primary suppliers, producers and sellers of goods to final customers within a specified period and can be understood as a tool for preparing, conducting and completing business transactions. Supply chain management as a relatively young management concept has gained wide practical and academic recognition. It caused fundamental changes in a number of industries and transformed the nature of competition.*

*This article discusses the concepts of supply chains and reviews various approaches to the definition of the term and structure of supply chains. Also, analyzes the main problems of the modern development of the concept of supply chain management.*

**Key words:** Management, supply chain, concept, information, flow, transformation.

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### Introduction

In practice and in theory, supply chain management is treated in a variety of ways - from simple coordination of sales and supply plans by several companies to a comprehensive concept of business management in the 21st century. This difference is caused, firstly, by the insufficient scientific elaboration of the theoretical and methodological foundations of supply chain management, the lack of classifications, etc., and secondly, the excessive abstractness of the available results due to the insufficient number of integrated formal methods and models that take into account the specifics of complex distributed economic systems. Many basic concepts of SCM have not yet been unequivocally defined and are interpreted differently by many authors, who, as a rule, are limited to an intuitive understanding of various terms. This leads to the lack of proper semantic unity in solving various problems of supply chain management, logical incorrectness, ambiguity in understanding the results of work and the scope of application of the proposed methods. In this regard, there is a need for a theoretical understanding of the complex interdisciplinary problems of supply chain management.

### Theoretical aspects of definition “supply chain management”

Supply chain management is a relatively new management concept that has received wide practical and academic recognition. Many researchers agree that this concept not only became a catalyst for fundamental changes in a number of industries, but also transformed the concept of the nature of competition [1].

An indicator of academic recognition of supply chain management is the avalanche-like growth over the past 15–17 years, the number of publications in scientific peer-reviewed journals: from 49 articles in 1994 to 1105 articles in 2008 [2]. A large number of publications allows researchers to work on identifying trends and patterns in the development of the concept of supply chain management. Therefore, you can find articles whose authors aim to identify key areas of research in the field of supply chains [3; 4] or synthesize the general definition of the term “supply chain management” [5; 2]. In this regard, the work [6] (it was originally published in 2008 in the *Journal of Supply Chain Management*), and the article [7] supplementing it are quite timely and interesting, especially for Russian readers who

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witnessed the rapid development of the concept supply chain management in recent years (see, for example, [8; 9; 10]).

The active interest of researchers in the concept of supply chain management is explained, in our opinion, by two main reasons. First, the concept of supply chain management claims an elegant explanation of the success of some innovative business models (for example, the business models of Zara, Dell, Wal-Mart, etc.), which is difficult to give within the framework of other management theories and concepts. Secondly, the concept of supply chain management is, in a sense, free from existing stereotypical solutions. By virtue of its “youth” and global nature, supply chain management seems to be the subject area of management research, the development of which can significantly reduce the current gap between the theory and practice of managing complex systems of relations between suppliers and customers.

Our task is not only to comment on the article published in this Chrestomathy, but also to analyze the main problems of the modern development of the concept of supply chain management: the definition of the term itself and the field of research. This will help the reader to better understand the context of published articles, in particular the work [6].

The concept of supply chain management is a “mix of different disciplines” [6]. It combines the tasks of logistics (minimization of costs in the logistics chain) and operational management (effective inventory management and production), marketing (focus on creating value for the customer) and relationship marketing (interaction with supply chain partners), as well as other disciplines. In this regard, it is obvious that it is only possible to explain how to manage the system of relationships and to achieve a general reduction in costs in the supply chain for a given level of quality of service to end users on the basis of an interdisciplinary approach. For a deeper understanding of why it is precisely supply chain management that sets such a beautiful and ambitious, but difficult task, an analysis of the evolution of supply chain management is needed (for a detailed analysis, see, eg: [11; 12]).

The practice (and after it the theory) of supply chain management appeared in response to the new economic challenges of the late 1970s - early 1980s, when the macroeconomic characteristics of the global economy, stagnating after the energy crisis, demanded significant efforts to develop new management decisions and concepts [13]. At that time, one of the conditions for the survival of companies was to reduce logistics costs. At the same time, it quickly became clear that the reason for the substantially increased logistics costs was not so much the rising transport component as the high costs of creating and maintaining insurance stocks, writing off obsolete stocks or, conversely,

under-received profit due to the lack of the necessary inventory levels to meet the increased demand.

These problems are signs of the “whip effect” (bullwhip effect) in the supply chain, the essence of which is that the partners do not have reliable information about real demand and are forced to create an insurance supply of materials and (or) finished products. The paradigm of core competencies that dominated the strategic management of the 1990s. [14], only aggravated the problem of the “whip effect”, since the focus of the company on key competencies means taking non-core business processes out of its limits.

As a result, in most cases there was an increase in the number of links in the supply chain while reducing control over the activities of suppliers. The natural and logical solution was to organize a simple coordination of the flow of materials and finished products through the exchange of reliable information between partners in the framework of trusting relationships [15]. That is what it received the name of supply chain management and later developed towards the creation of more complex systems of coordination and integration of key business processes [11].

The modern supply chain differs from the vertically integrated corporation of the beginning of the 20th century. That consists of separate, formally independent (in fact, closely interrelated in the business process and therefore interdependent), focused on their core competencies of organizations, aiming to minimize total costs in the supply chain and maximize value for the end customer.

In applied and theoretical research, the use of an interdisciplinary in nature concept of supply chain management, along with the benefits provided, also engenders additional difficulties. So, while there is no common understanding and definition of the term “supply chain management”. Authors use various definitions, sometimes contradictory [16]. The definitions contained in scientific articles largely depend on the initial position — logistics, operations management, marketing, or another discipline — the author adheres to. Thus, experts in the field of logistics and operational management focus on optimizing business processes [18], and marketing specialists at the level of service and value for the client [10; 17].

The attempts that have been made so far to arrive at a single definition have not yet been crowned with success. For example, in [2], the authors attempted to synthesize their definition, based on the analysis of existing ones: related systems that facilitate the direct and reverse flow of materials, services, finance and information from the manufacturer to the end user with added value

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advantages, increasing profitability due to the growth efficiency and customer satisfaction [2]. However, the “synthetic” definition has its drawbacks: it is not focused enough and is extremely cumbersome.

Thus, at present, supply chain management as a management concept and scientific discipline at the stage of formation is distinguished by the presence of a variety of research paradigms, the widest variety of objects studied, as well as a marked predominance of work focused on practical business needs. All this suggests that the “hard” core of scientific discipline, determined by the presence of the research paradigm generally recognized by the academic community, cannot be considered formed in supply chain management. The scientific controversy of eminent scientists that has developed on the pages of the journal serves as a direct confirmation of this [8; 9]. The lack of a clear basic definition further hinders both the theoretical and practical development of the concept of supply chain management. It is impossible to create a coherent theory without a consensus on basic definitions.

The second, no less important from our point of view problem of the modern concept of supply chain management is the problem of the field of research. In [6], six shortcomings of modern studies were noted, the most significant of which, in our opinion, are the single-level nature of the studies, the small size of the samples and limited methodological analysis. The remaining problems are derived from those listed above.

The root cause of poor quality research is also the interdisciplinary nature and comprehensive nature of supply chain management. Indeed, the study of the supply chain, consisting of “three or more organizations” [5], requires significant time and financial costs. For this reason, mainly single-level studies are conducted; at best, dual relationships are investigated [6]. However, it is impossible to consider them as full-fledged research of supply chains. Rather, they analyze individual fragments of the supply chain, and the findings are extrapolated to the whole chain, which, in our opinion, is not always certain.

Studies in the field of supply chain management are often cases that describe the experience of an individual company or companies in a particular industry, usually automotive [18]. At best, cases are longitudinal in nature, such as the study of the interaction between the Norwegian Railways and a food supplier [19], which, however, is quite rare. The analysis of extensive samples in the study is even rarer.

In this regard, the findings of researchers are often based on unreliable data: at best, the conclusions do not have evidence, at worst - they are incorrect. Even neglecting a large sample that validates the results is characteristic even of key articles on this topic. So, article [17] is based on the

opinion of managers of eight independent companies. The article [5] does not mention empirical research at all.

A way out of this situation could be to conduct research on supply chains (at least three of its links), based on extensive samples that are sufficient to draw reliable conclusions. In addition, the analysis of large amounts of information will require additional work towards the development of new data analysis methods, which should lead to a more accurate modern understanding of the nature of supply chain management, its problems and prospects.

On the other hand, the quality of research is also influenced by their limited scope - researchers ignore a large number of solutions successfully implemented by business. In [6] a list of 13 subject categories is presented, which classify those performed in the field of supply chain management research. The choice of this list, the authors argue that it is this classification used by the Institute for Supply Management. However, there are good reasons to believe that this list, officially recognized by the professional community, is by no means complete and leaves, in particular, new, rapidly developing areas of research in the field of supply chain management, outside the classification. Therefore, recently there has appeared quite a large number of works analyzing various aspects of the effectiveness of supply chains. This is evidenced not only by the large number of original studies published on the issues of measuring, analyzing and managing the efficiency of supply chains, but also by the appearance of general reviews of this area of research. Moreover, the themes of the works of this direction does not allow to refer them to any of the 13 categories specified in [6].

### Local research in the field of supply chain management

In the work of F.R. Galimova, scientific proposals and practical recommendations for optimizing transport and logistics processes in the agricultural supply chains [20] were developed. According to O.G. Dilmurodova, the improvement of the mechanism for the formation of a modern logistics system for fruits and vegetables will give more results in the conditions of economic liberalization [21]. N.H. Burieva, in her work, focused mainly on studying the methods and forms of organizing and managing supply chains based on economic mechanisms in order to ensure the efficiency of agricultural enterprises [22]. In the work of M.Sh. Mamatkulova, provided scientific advice on the organization and improvement of logistics costs in supply chains [23]. Unlike previous works, O.A. Kamalov considered the contractual relationship between specific actors in the supply chain [26].

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### Conclusion

The systematic nature of the authors' analysis of a ten-year period of publications on supply chain management with a carefully defined methodology for selecting articles for subsequent consideration can serve as a model that should be followed when performing this kind of research.

The concept of supply chain management is a broad concept and covers the entire process from the manufacturer to the final consumer. In the literature review above, various aspects of supply chains are considered, but in my opinion, one of the main tools for the comprehensive improvement and development of supply chains is the information support system. That is, the use of various digital technologies: Big Data, IoT (Internet of Things), cloud services, in a word, the digital transformation

that is occupying a major position in the economy as a whole, raises the process of supply chain management also. Digital supply chain management is in line with current trends in business and information technology, which will allow companies to gain new competitive advantages and increase the level of cooperation and transparency in the supply chain.

This work not only eliminates the lack of detailed and high-quality review articles in Russian scientific journals on supply chain management, but also sets challenges for future research on outsourcing in the context of supply chain management.

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