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A. Zaverbnyj,
DrHab (Economics), Professor,
ORCID 0000-0001-7307-536X,
e-mail: andrii.s.zaverbnyi@lpnu.ua,

H. Pushak,
PhD (Economics),
ORCID 0000-0002-2487-8374,
e-mail: halyna.i.pushak@lpnu.ua,
Lviv Polytechnic National University, Lviv

THEORETICAL AND APPLIED PRINCIPLES OF SUPPLY CHAIN MANAGEMENT UNDER CRISIS ECONOMIC CONDITIONS: STRATEGIC ASPECT

Problem statement. The high level of dynamism of economy of Ukraine, including the intensification of European integration processes, internationalization, respectively, the growth in the number of suppliers, their regionalization, and in recent years, the pandemic, its consequences, the war with russia, etc. have put forward new requirements for the formation and development of logistics. New tasks have arisen to form rational logistics and supply chains and build effective management systems. The European integration direction of the national economy requires, first of all, solving organizational and economic problems in forming efficient supply chains, which will help to ensure a sufficient level of competitiveness of Ukrainian goods and services in the European market. Logisticization of the economy of Ukraine was already slow before the war, and new threats and risks associated with the war have destroyed many of the previous achievements. This had a negative impact on the competitiveness of goods and services, increased their cost, led to inefficient warehousing, use of suboptimal delivery and transportation methods (destruction of all chains related to air and sea transportation), etc. Therefore, the problems of increasing the efficiency of logistics activities, the functioning of logistics chains in the context of European integration of Ukraine and access to the markets of developed European countries are becoming particularly important and relevant. Improving the efficiency of functioning of logistics chains will require their evaluation, analysis, monitoring and management based on modern concepts.

Analysis of recent research and publications. The problems of supply chain management in crisis economic conditions are reflected in the scientific works of such scientists as N. Artiukh [13, p. 101-107], K. Afanasiev [1, p. 250-253], S. Barkova [20, p. 97-102], O. Bezchasnyi [24, p. 282-295], S. Berezynka [5, p. 251-258], S. Vasylchak [25, p. 172-181], T. Hryhorenko [9, p. 264-268], A. Dykan [20, p. 97-102], S. Dubovyk [2, p. 402-410], A. Zaverbnyi [3, p. 13-19; 4, p. 14-21; 21, p. 8-13], O. Zerniuk [5, p. 251-258], S. Ivanov [6, p. 16-27], N. Ilchenko [7, p. 62-71], K. Kozlova [20, p. 97-102], T. Kolodizieva [8, p. 133-139], K. Kosyk [20, p. 97-102], D. Kochubey [7, p. 62-71; 9, p. 264-268], Ye. Krykavskyi [10], A. Kulik [16, p. 94-104], D. Lambert [18], S. Lysa [11, p. 80-84], V. Liashenko [6, p. 16-27], N. Osadcha [6, p. 16-27], I. Palamarchuk [13, p. 101-107], O. Pohylchenko [10], M. Psui [4, p. 14-21], H. Pushak [4, p. 14-21; 14, p. 61-77], Ya. Pushak [24, p. 282-295; 25, p. 172-181], M. Saiensus [15], A. Samoilenko [16, p. 94-104], N. Syhyda [2, p. 402-410], V. Skitsko [17, p. 48-63], Yu. Spesyvyi [2, p. 402-410], J. Stock [18], I. Topalova [19, p. 126-134], N. Trushkina [14, p. 61-77], M. Fertch [10], I. Fomichenko [20, p. 97-102], R. Hindiak [21, p. 8-13], V. Khobta [24, p. 282-295], Ye. Chebotarov [22, p. 39-44], Yu. Shkryhun [23, p. 53-61] and many others.

It is clear that until February 24, 2022, almost no one dealt with logistics issues during the war, especially among domestic specialists. However, the realities of russia's full-scale invasion of Ukraine forced the logistics management systems that were not ready for these challenges to react with lightning speed. Therefore, the problematics is relevant.

The purpose of the article is to determine the essence and features of strategic supply chain management in crisis economic conditions.

Outline of the main results and their justification. First of all, it is necessary to clearly define the essence of the concept of «supply chain». In foreign scientific literature, the term «supply chain» began to be used alongside «logistics system», and recently this trend has been observed in domestic science as well. What is more, until the moment of the formation of integrated logistics, the concept of «supply chain» was identified with the term «logistics chain» [2; 15; 18]. These concepts were used almost synonymously. The separation of interpretation occurred due to the implementation of an independent paradigm of the supply chain management system (SCM). According to most scientists, the starting point for the further development of the concept of «supply chain

management» was the desire to reduce (minimize) the level of uncertainty based on methods, cooperation models, a multi-level inventory management system, etc. [1-2; 12; 17-18; 25]. This process took place in a timely manner and is extremely important for science and practice. After all, the logistics chain is linearly organized legal and physical entities that directly participate in the delivery of necessary resources (materials) and/or finished products to a specific recipient (consumer) [2; 17; 23-24].

At the same time, the supply chain is generally understood as a complex combination of all types of business processes (design (development), production (provision, if it is a service and execution, if it is work), sale, maintenance, procurement, distribution , resource management, etc.), which are necessary for the effective satisfaction of demand for products (services, work), starting from the initial receipt of initial resources (material, financial, informational, etc.) and right up to the moment of delivery to the final consumer [13; 18-19]. That is, in the structure of the supply chain, it is possible to distinguish complete logistics chains, which, in turn, contain all the key links, stages of the reproductive process, starting from raw material sources and ending with final consumers. Flows (input and output) collectively make up the maximum supply chain [13; 18].

In particular, scientists J. Stock and D. Lambert not only clearly and unambiguously interpreted the essence of the concept of «supply chain management» but also established its content [18; 21]. According to their definition, its essence lies in the integration of all key business processes that originate from end users, covering all suppliers of goods (services, works, information), adding value to consumers and other stakeholders [1; 15; 18].

This interpretation, having a substantive character, also determines the scope of competence of this type of management [18]. Experts identify the following three reference models of supply chain management:

– SCOR-model (Supply Chain Operations Reference Model),

– CPFR-model (Collaborative Planning, Forecasting and Replenishment Model),

– GSCF-model (Global Supply Chain Forum Model) [7; 9].

Based on our analysis, we will present a comparative characteristic of these models (Table 1).

Table 1

The comparative characteristic of supply chain management models

Characteristic features	Models		
	SCOR	CPFR	GSCF
Structural	Contains five business processes: planning, procurement, production, delivery, organization of reverse flows	Consists of the following blocks: interaction operations, demand and supply management, interaction operations aimed at placing, receiving payment, analysis of the processes of performing operations (indicators of the efficiency of integrating key business processes	Based on the identification of the main management business processes: customer relations, customer service, demand management, order fulfillment, production material flow management, supplier relations, commercialization of goods
Conceptual	The model combines three modern management concepts/technologies – reengineering of the business unit, benchmarking and use of best practices	Supply chain management is related to the main elements: the network structure of the supply chain, business processes, management	Based on core management business processes
The level of interconnections with the enterprise strategy	Connection to the operational strategies of the enterprise	Connection to the operational strategies of the enterprise	Connection to the corporate and functional strategies of the enterprise
The breadth of the set of activities	All transactions are related to supply/demand planning, sourcing, production, and logistics	All types of activities that are implemented during the movement of flow processes	All types of activities related to the implementation of 8 business processes
Intra-organizational relations	Cross-functional interaction, information exchange	Makes it impossible to assess the consistency of internal resources	Cross-functional integration as part of the organization of flow processes
Inter-organizational relations	Transaction efficiency	Relationship management	Relationship management
Value forming factors	Aimed at cost reduction, asset utilization	Aimed at improving the efficiency of supply chains	Aimed at maximizing added value
Information support	The information flow does not stand out at all	High level of information exchange between partners	The integrative role of information flow

Note: summarized by the authors based on [2; 3; 7; 9; 15-17; 21; 25].

The corporate information systems and the use of Internet technologies have given a new impetus to the harmonious development of supply chain management systems. They have contributed to a significant increase in the efficiency of coordinating processes in supply chains.

Innovative information and communication technologies have become an environment for ensuring and improving the efficiency of supply chains, a powerful tool for the harmonious and sustainable development of the latest supply chain management concepts (Table 1).

Thanks to the information and communication technologies, it has become possible to implement one of the main (conceptual) ideas of the supply chain management system, namely: information coordination, synchronization of demand and supply.

It is integration and coordination that fundamentally distinguishes the supply chain management systems from traditional concepts of intercompany cooperation.

The supply chain management system is rapidly evolving, becoming increasingly important for industrial, logistics, trade and other enterprises.

The practice of supply chain management has proven the effectiveness of building, analyzing, and monitoring business processes based on an integrated consideration of all areas and elements of the product (service) value creation process, not just costs and profits, without taking into account the impact of inter-organizational relations with suppliers, customer relations, etc.

Foreign and domestic experiences demonstrate a wide variety of integration forms applied in supply chain interaction.

It is systemic logistics enterprises (often in the form of vertically integrated companies) that are developing in a natural, harmonious and sustainable manner.

These structures possess the necessary organizational, financial, and intellectual capital and have the administrative resources to quickly and efficiently solve various tasks of a tactical, operational, and even strategic nature.

Thus, a new vision of economic transformation is being established in logistics practice. Integration into global production networks will allow countries (including Ukraine) to reveal their comparative advantages by focusing on specific tasks and industries.

Let's analyze the strategies available in the global economy (Table 2).

Table 2

Recommended strategies for enterprise expansion in the context of logistics globalization

Criteria	Characteristics of the strategies recommended for use		
	Vertical integration strategy	Horizontal integration strategy	Outsourcing and offshoring strategies
The purpose of expanding the enterprise	Expanding the supply chain by acquiring/merging with suppliers/customers	Acquisition/merger with competitors	Certain activities to be carried out by another enterprise in another location
Positive results from the implementation of the strategy	Cost minimization. Increasing the level of quality of products (services) and protecting them. Increasing the level of efficiency of the supply chain	Economies of scale. Differentiation of products (services). Replication. Replication of business models	Reducing cost levels. Focusing on core competencies
Negative results from the implementation of the strategy	A higher level of supplier cost structure. Difficult adaptation to changes, lower level of supply chain flexibility under highly dynamic economic and technological conditions	Different business cultures. The application of antitrust responses. High level of market concentration, which may lead to antitrust measures by governments	May lead to significant dependence on suppliers (especially if the supplier is a monopolist), loss of competencies

Note: summarized by the authors based on [15-17; 20].

Modern production systems have become the end result of the dynamism of production factors, distribution and production networks.

Therefore, the key issue is for an enterprise to choose from the existing corporate strategies for its expansion.

The modern globalized economy is characterized by an additional effect that has arisen due to the elimination of geographical, sectoral, and intra-corporate barriers. The effect is due to (Table 2) systemic integration, globalization and cooperation.

The current scale of partnership between previously competing corporations is driven by the urgent need to reduce uncertainty and risk in supply chain interactions. This is the dominant factor that plays a crucial and strategic role in the functioning of supply chain security management systems.

In general, in order to establish the cumulative impact of all business processes on the level of supply chain performance, which will allow to approach the measurement of their synergistic effect, it is necessary to ensure continuous monitoring of indicators in two

areas [15, 16]: process (through a set of process indicators that will characterize the level of process performance according to the selected model (Tables 1, 2) and system (through a set of indicators of the level of supply chain performance) [15, 16].

Conclusions from the conducted research. New opportunities have led to the expansion of services, services in the field of inter-sectoral, inter-corporate interaction, achieving synergy effects through the use of models of strategic behavior within the framework of the supply chain management concept. The level of efficiency of the logistics activities of the domestic economy is directly dependent on the processes of formation of effective supply chains by national enterprises and implementation of supply chain management principles. Under crisis economic conditions (including market volatility, destruction of well-established supply chains, in particular due to military operations), there is a need for a quick response, complete modernization and adaptation of the logistics services offered throughout the supply chain. Forming and offering the market the latest, most advanced, adaptive services to customers will help balance the unpredictability of the market with the need to obtain a stable and growing level of profitability.

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Завербний А. С., Пушак Г. І. Теоретико-прикладні засади управління ланцюгами постачання за кризових умов господарювання: стратегічний аспект

У статті висвітлено основні методологічні стратегічні аспекти управління ланцюгами поставок за кризових умов господарювання. Автори визначили сутність поняття «ланцюг поставок». У структурі ланцюга поставок можна виділити повні логістичні ланцюги, які, у свою чергу, містять усі ключові ланки та етапи процесу відтворення, починаючи від джерел сировини і закінчуючи кінцевими споживачами. Проаналізовано нові завдання щодо формування раціональних логістичних ланцюгів, ланцюгів поставок та побудови ефективних систем управління ними. Наведено порівняльну характеристику моделей управління ланцюгами поставок. До ключових характерних особливостей відносяться структурно-концептуальні, рівень взаємозв'язків зі стратегією компанії, широта спектру діяльності, внутрішньоорганізаційні зв'язки, міжорганізаційні зв'язки, чинники формування цінностей, інформаційне забезпечення тощо.

У практиці логістики утверджується нове бачення економічної трансформації. Інтегрування до глобальних виробничих мереж дозволить країнам (особливо Україні) виявити свої порівняльні переваги, зосередившись на конкретних завданнях і галузях.

Досліджувалися сучасні виробничі системи, які стали кінцевим результатом динамізму виробничих факторів, розподільчих і виробничих мереж. Висвітлено критичні проблеми щодо вибору підприємствами існуючих корпоративних стратегій для їх подальшого ефективного розширення. Проаналізовано наявні в глобальній економіці стратегії, висвітлено їх переваги та недоліки.

Для встановлення сукупного впливу всіх бізнес-процесів на рівень ефективності ланцюга поставок, що дозволить підійти до вимірювання рівня їх синергічного ефекту, необхідно забезпечити постійний моніторинг показників за двома напрямками: процес і система.

У кризових економічних умовах (нестабільність ринків, руйнування налагоджених ланцюгів поставок, зокрема, через військові дії) виникає потреба у швидкому реагуванні, повній модернізації та адаптації пропонованих логістичних послуг по всьому світу. ланцюг поставок. Пропонується сформувати та запропонувати клієнтам ринок новітніх, досконалих, адаптивних послуг, що дозволить збалансувати непередбачуваність ринку з необхідністю отримання стабільного, зростаючого рівня прибутковості.

Ключові слова: ланцюги постачання, логістика, логістичні ланцюги, кризові явища, стратегія, система управління.

Zaverbnyj A., Pushak H. Theoretical and Applied Principles of Supply Chain Management under Crisis Economic Conditions: Strategic Aspect

The article highlights the main methodological and strategic aspects of supply chain management under crisis economic conditions. The authors defined the essence of the concept of «supply chain». In the supply chain structure, it is possible to distinguish complete logistics chains, which, in turn, contain all key links and stages of the reproduction process, starting from raw material sources and ending with final consumers. New tasks related to the formation of rational logistics chains, supply chains and the construction of effective systems of their management have been analyzed. Comparative characteristic of supply chain management models is given. The key characteristic features include structural and conceptual, the level of interconnection with the enterprise strategy, the breadth of the set of activities, intra-organizational connections, inter-organizational connections, value forming factors, information support, etc.

A new vision of economic transformation is established in logistics practice. Integration into global production networks will allow countries (especially Ukraine) to reveal their comparative advantages by focusing on specific tasks and industries.

Modern production systems, which have become the end result of the dynamism of production factors, distribution and production networks, have been studied. The critical problems regarding the choice of existing corporate strategies by enterprises for their further effective expansion have been highlighted. The strategies available in the global economy have been analyzed, their advantages and disadvantages have been highlighted.

In general, to establish the cumulative impact of all business processes on the level of performance of the supply chain, which will allow us to approach the measurement of the level of their synergistic effect, it is necessary to ensure constant monitoring of indicators in two areas: process and system.

Under crisis economic conditions (in particular, instability of markets, destruction of well-established supply chains, in particular, due to military actions), there is a need for a quick response, complete modernization, and adaptation of the proposed logistics services throughout the supply chain. It has been proposed to form and offer a market of the latest, perfect, adaptive services to clients, which will allow balancing the unpredictability of the market with the need to obtain a stable, growing level of profitability.

Keywords: supply chains, logistics, logistic chains, crisis phenomena, strategy, management system.

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