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MANAGEMENT OF LOGISTICS ACTIVITIES OF ENTERPRISES IN THE CONTEXT OF INDUSTRY 4.0

Formulation of the problem. In modern conditions of rapid digitalization of many spheres of life, including business, special attention is paid to the aspect of logistics management as an integrated process. The digital economy is characterized by processes of digital transformation. David Terrar, an analyst at Agile Elephant Consulting, notes that the digital transformation is the process by which an organization moves to new ways of thinking and working based on the use of social, mobile and other digital technologies. This transformation includes changes in thinking, leadership styles, innovation promotion systems and the adoption of new business models to improve the work of employees of the organization, its customers, suppliers and partners [1].

From an economic point of view, according to a joint study by Capgemini Consulting and MIT Sloan School of Management (School of Management at the Massachusetts Institute of Technology), digital transformation has a significant impact on financial performance. For example, in the absence of these changes, the decline in profits compared to competitors will be 24% per year. The interdependence between technologies and new management methods is noted. In the case of synergy between the implementation of new technologies and the modernization of management methods, there is an increase in profits by 26%. In the presence of one aspect there is a decrease of 11% in the case of the introduction of only digital technologies and an increase of 9% in the case of modernization of only management methods [2].

The logistics processes of the enterprise are a significant component of the operational and long-term activities of the enterprise. Given the digitalization of the economy, it is advisable to consider logistics processes as part of the concept of "Logistics 4.0" [3]. Close interdependence and integrated nature of enterprise performance indicators determines the urgency of considering the theoretical aspects of logistics management in a digital economy.

Analysis of recent research and publications.

The analysis of the professional literature on logistics shows the diversity of approaches of scientists to the definition of "management of logistics activities of the enterprise". Various scientific sources use such concepts as "logistics management", "logistics management",

"strategic logistics management", "logistics management of the enterprise", "logistics management in the company", "logistics management", "supply chain management", "marketing and logistics management" etc. [4-34].

Conceptual principles of improving the management of logistics activities of enterprises of various industry specifics are highlighted in the works of such leading scientists as K. Barrat, J. Bauersocks, P. Blake, D. Wood, D. Kloss, F. Kotler, M. Christopher, J.-W. Lamben, P. Murphy, G. Sander, J. Stoke, M. Whitehead, A. Harrison, J. Schreiberfeder, O. Amosha, N. Bryukhovetskaya, I. Buleev, M. Vaselevsky, M. Grigorak, Y. Zaloznova, V. Kisly, E. Krykavsky, V. Perebyinis, O. Posylkina, O. Pokhilchenko, R. Saggaidak-Nikityuk, O. Sumets, K. Tankov, O. Trifonova, N. Chornopyska and others.

Researchers have substantiated the logistics models of distribution; methodical approaches to determining the optimal volume of the delivery batch and calculating the indicators of efficiency and productivity of customer service; concepts, models of optimization and supply chain management strategies; scientific and methodological principles of risk management of enterprises and practical tools for determining logistical risk in conditions of uncertainty.

However, despite such close attention to the problem outlined by scientists, it remains important to conduct research to improve the efficiency of logistics activities of enterprises, which must meet modern requirements of management in a globalized and digital economy.

With this in mind, the aim of this article is to analyze and generalize conceptual approaches to determining the theoretical foundations of logistics management in the digital economy and the author's interpretation of this definition in the context of modern transformational transformations.

Presenting main material. When studying approaches to defining the meaning of the term "logistics management", most scholars understand this definition as a tool, mechanism, synergy of management functions, integration of logistics and management, organization and management of various flows, integrated business process management, consolidated group of logistics operations, management decision making (Fig. 1).

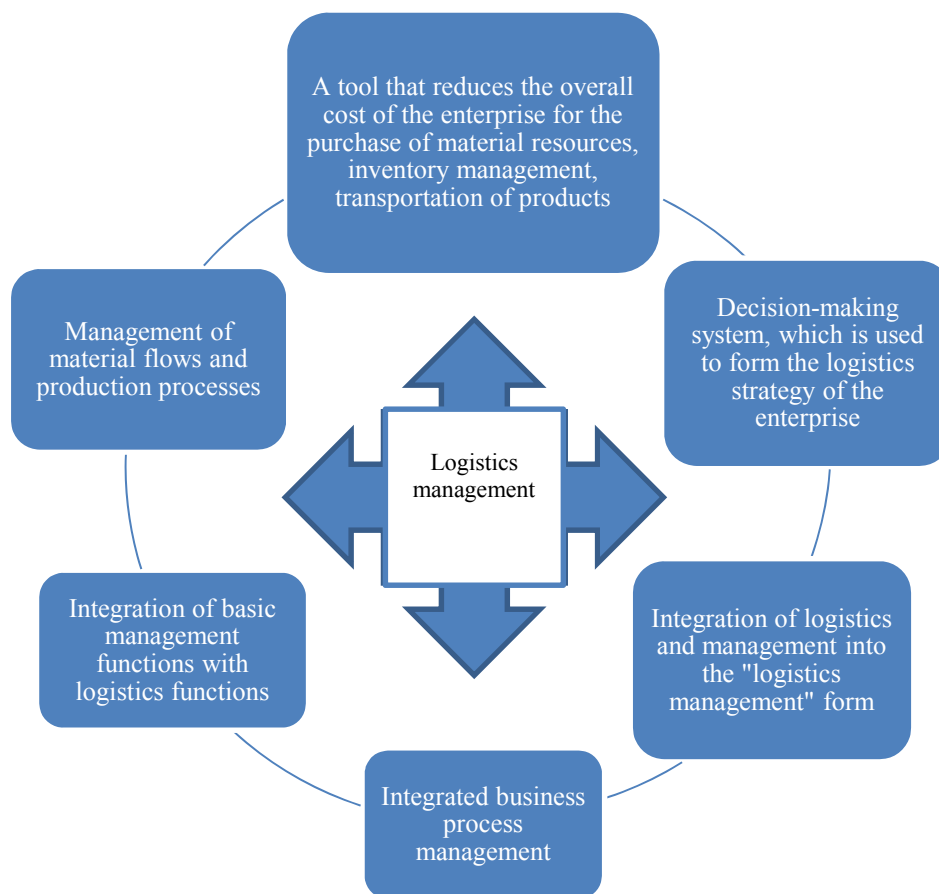


Fig. 1. Conceptual approaches to the definition of "logistics management"
(built by the author)

The authors note the integrated nature of logistics management as a tool for planning, organizing, regulating, optimizing, coordinating and controlling material and information flows. From the point of view of planning, the term can be described as a decision-making system through which the formation of logistics and overall strategy and mission of the enterprise. The concept can be considered as a process of administration of the logistics system, the synergy of basic management functions with logistics functions. As a complex localized management system based on the principles of logistics theory, it is possible to consider the integration of logistics and management in the form of "logistics management".

In particular, the first category of authors defines logistics management as a tool that reduces the overall costs of the enterprise for traditional functions of procurement of material resources, inventory management, transportation and processing of products, information flow management.

The second category of scientists considers "logistics management" as a synergy of basic management functions (organization, planning, regulation, coordination, control, accounting, analysis and forecasting) with basic complex logistics functions to achieve short-term and long-term goals of logistics

system and synthesis of basic management functions – planning, organization, regulation, coordination and control of flow processes.

The third category of authors understand the term "logistics management" as the organization, planning and management of material and information flows. It is established that logistics management, using the methods of operational management, ensures the implementation of all processes with minimal total costs – the cost of production, including the purchase of materials and distribution of finished products with delivery to the final consumer.

Logistics management is also understood as the basis for the development of business strategy of enterprises for the management of material and information flows, production process.

The authors of the fourth category define "logistics management" as the management of integrated business processes related to product promotion and related flows from the moment of demand for products to the moment of meeting this need to improve business efficiency and customer loyalty.

It is noted that the company's logistics management system includes such subsystems as management of:

- information and software, document management, including digital;

- ensuring the purchase of products, managing relationships with suppliers;
- product distribution (definition and organization of optimal and customer-oriented product delivery, work with retail network, management of pricing in a changing market);
- logistics infrastructure;
- logistics costs;
- customer service processes, maintaining the quality of customer service on the basis of customer orientation.

The fifth category of scientists points out that the term "logistics management" means management in logistics systems based on the theory of logistics and is based on the integration of logistics and management in the form of "logistics management" as a comprehensive localized management system of material and information flows.

The analysis shows that some authors under "logistics management" indicate a tool on the basis of which you can reduce the cost of logistics, inventory management, transportation of products to consumers; others – synthesis of management functions (planning, organization,

regulation, coordination and control) of flow processes; third – management of material and information flows; fourth – management of integrated business processes, from logistics to sales of finished products to consumers; fifth – the integration of management theory and logistics.

Some authors use the term "logistics management", which includes management: inquiries from consumers, proposals from market participants and establishing a relationship between them; information flows; procurement and supply processes; production activities; stocks and warehousing; financial and marketing activities; service; pricing; other components of production activities and relationships with the end user. Logistics management is aimed at optimizing the movement of goods, inventories and costs, ensuring high quality service in the supply chain.

Given the components of the subsystems of logistics management, in determining the content of the concept of "logistics management", most scientists pay attention, as a rule, to the management of material and information flows, material and technical resources, stocks, trade, customer satisfaction. (Fig. 2).

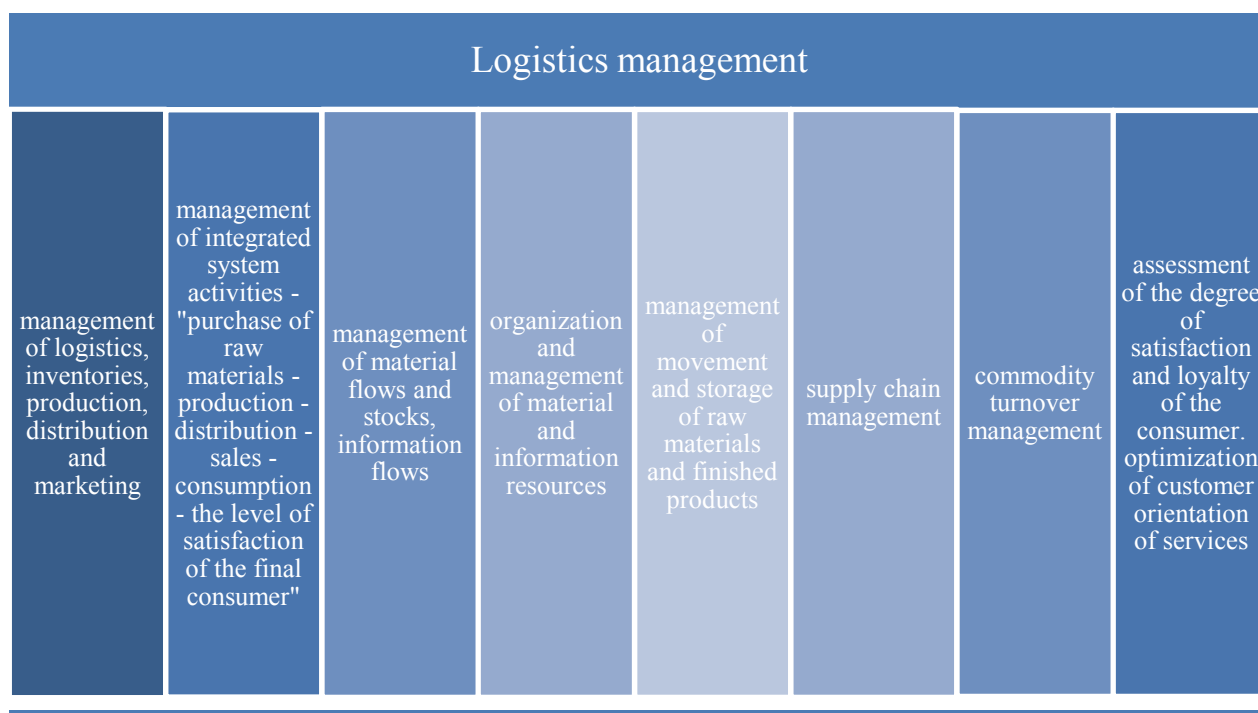


Fig. 2. Scientists' approaches to defining the concept of "logistics management"
(built by the author)

According to the scientific concepts of various scientists under logistics management is considered:

- the process of managing the movement and storage of raw materials, components and finished products in economic circulation from the moment of payment to suppliers until the receipt of funds for the supply of finished products to end users;
- the process of managing the storage and movement of raw materials and finished products from the supplier through the manufacturer to consumers;

▪ the process of managing the movement and stocks of goods from the point of purchase to the point of consumption;

▪ the process of strategic management of procurement, movement and storage of materials, components and finished products (and relevant information flows) of the organization and its marketing channels, which maximizes current and future profitability by fulfilling orders with maximum cost minimization;

- the process of managing logistic support, inventories;
- process of material resources management;
- the process of managing the promotion of resources from markets for factors of production to markets for goods;
- a set of organizational measures, which includes the purchase of material resources, their transportation, warehousing and packaging;
- the process of movement management and logistics;
- direction of economic activity, which includes the management of material and information flows in the areas of production, circulation, customer orientation;
- the process of managing material flows and stocks in order to meet the needs of consumers and optimize the supply, production, marketing costs associated with the movement and preservation of material values;
- a set of technical means, activities (operations, works, processes, integrated technologies) and methodological rules aimed at effective planning, organization, practical implementation and management of material and information flows, their legal, informational, financial, engineering, scientific and methodological and digital provision and implementation in accordance with the current, strategic objectives of the enterprise or specific objectives;
- purposeful influence on the movement and coordination of material and related business processes, which maximizes the usefulness and assumes the presence of synergies in interaction;
- the process of managing the integrated system activities of the company's functional divisions to promote products in the chain "purchase of raw materials – production – distribution – sales – consumption – customer feedback" based on the coordination of functionality, procedures and operations performed in this process;
- a set of activities to manage product flows, coordinate the use of resources and markets at a given level of services with minimal costs;
- the process of managing differentiated functions of supply, production, sales, customer orientation;
- the cycle of economic activity in the context of a single whole, from the choice of appropriate tasks, including the definition of effective methods for their solution and management of practical application of these methods, and to the organization and management of sales and sales;
- the process of managing the processes of logistics, production, distribution and marketing of products;
- procurement, inventory, production and sales management process;
- time-dependent location of resources, strategic management of the entire supply chain;

- the part of supply chain management related to the planning, implementation and control of the efficiency and productivity of direct and reverse flows of goods, services and related information on the full cycle of activities;
- the process of goods management.

In the scientific literature there is the concept of "logistics management of the enterprise", which considers a strategic tool to ensure the activity, without distinguishing between different types of logistics in the areas of its use or functional characteristics. The advantage of logistics management is the integration of functionally diverse activities of the enterprise (eg, production and distribution activities, as well as investment and innovation in the modernization of production), in the implementation of key strategic goals – the company's mission and competitive advantage in the market.

Some experts use the term "logistics management in the company" as an integrated management of business processes to promote products and related flows from the point of origin to the end user to ensure maximum efficiency of the company, as well as a system that integrates management into a single entity. internal business processes and external business processes as relationships with partners.

It is noted that the essence of logistics management is to develop a set of processes for planning, organizing, controlling and managing transportation, warehousing and other tangible and intangible operations, including digital, in the process of bringing raw materials to the enterprise, processing raw materials, bringing finished products to the consumer with the interests and requirements of the latter, as well as the transfer, storage and processing of relevant information.

The constituent concepts of "supply chain management" can be defined as the management of customer relationships; customer service; demand; execution of orders; production flow; supply; product development and bringing it to commercial use; reverse flows.

Scientists pay special attention to the development of the concept of marketing and logistics management, which means the integration of marketing and logistics. According to some authors, within the marketing philosophy, the concept of logistics directs the company's activities to minimize the total cost of moving and storing inventory, ranging from the choice of suppliers to after-sales service.

Thus, it can be noted that there are currently a large number of definitions on the topic of logistics management of enterprises. Various terms are used in scientific sources: "logistics management", "logistics management", "logistics management of the enterprise", "logistics management in the company", "logistics management", "supply chain management", "marketing and logistics management", which are based on various scientific concepts and positions.

It is established that the majority of scientists include only the organization in the functions of logistics management; planning, implementation and control; planning and control.

The analysis may show that when covering the issue of "management of logistics activities of the enterprise" scientists do not always consider the full range of components of the term.

Given the current changing market conditions, global and accelerated digitization processes, the high probability of black swan events, such as the COVID-19 pandemic, which directly determines the new conditions and objectives of management, it is advisable to consider the whole concept taking into account the impact of digital technologies (Fig. 3).

Thus, the meaning of the term "management of logistics activities of the enterprise" can be clarified as a continuous integrated process carried out through the implementation of management functions (forecasting, planning, organization, accounting, control, analysis and regulation), processes of logistics activities in a single complex and supply of material resources (MR), contract work with suppliers, warehousing of MR, formation of production and storage stocks, production of products, formation of inventories, recycling of

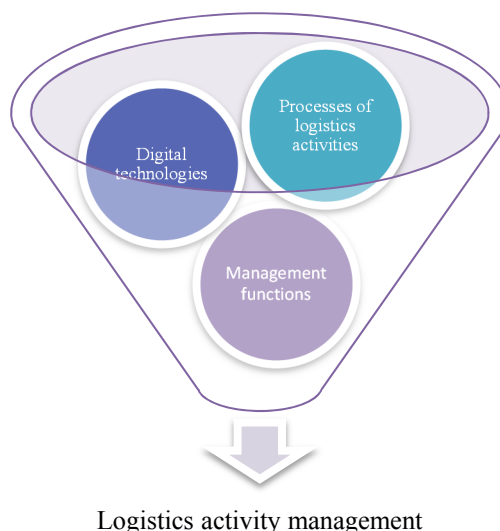


Fig. 3 Components of management of logistic activity of the enterprise in digital economy
(offered and created by author)

industrial waste, customer service, transportation of products, sales of finished products) and digital technologies and information systems (Fig. 4).

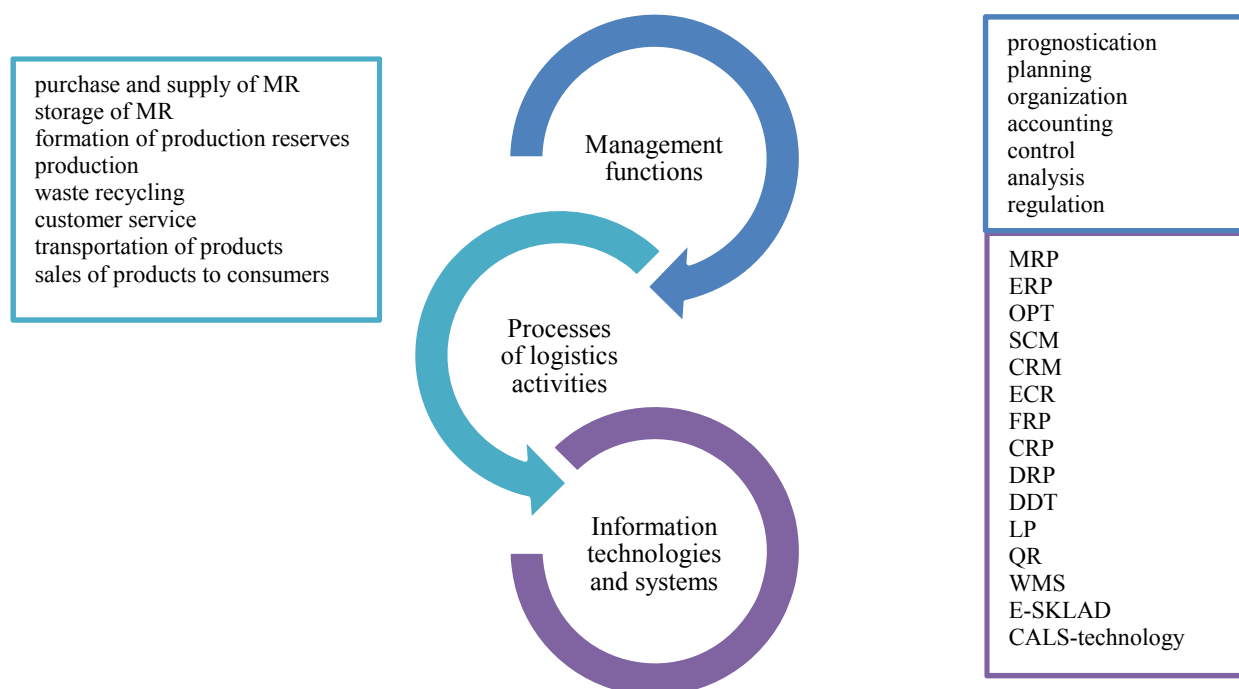


Fig. 4 Structural and logical scheme of management of logistics activities of the enterprise in the digital economy
(author's development)

Conclusions. Based on the above, we can conclude that in modern business conditions, the digitalization of business processes will help streamline flows, improve service quality, increase efficiency and flexibility of logistics services. For example, the preparation of paper documents and delivery delays associated with its registration is 10-15% of transport costs. With the introduction of digital logistics on the basis of legally

recognized electronic document management, these costs and delivery times can be reduced by 20-40% [18]. According to Customer Service experts, increasing customer loyalty helps increase profits. At the same time, according to the American Consumers Association, attracting new customers is 5 times more expensive than maintaining existing ones. Experts from the Canadian Imperial Bank of Commerce estimate that

a 2% increase in consumer loyalty could lead to a 2% increase in net income.

As a result of the research, various theoretical approaches to the essence of the concepts of "logistics management", "logistics management" are generalized and systematized. And on this basis, the author's interpretation of the term "management of logistics activities of the enterprise", which differs from the

existing ones is the symbiosis and integration of management functions, logistics processes and technological and information systems.

Prospects for further research are to study the foreign practice of digital transformation of business processes of companies and determine the content and essence of the concept of "digital transformation of logistics activities of enterprises".

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Шкригун Ю. О. Управління логістичною діяльністю підприємств у контексті індустрії 4.0

У сучасних умовах цифрової економіки та великої кількості форс-мажорних подій, як економічного, так і соціального характеру, особливої актуальності набувають питання забезпечення виробництва необхідними матеріальними та інформаційними ресурсами й ефективного їх використання; удосконалення оперативного та стратегічного управління складським господарством, запасами продукції, диференційованими транспортними потоками, збутовою діяльністю та клієнтським досвідом.

З метою забезпечення ефективної діяльності підприємства мають організувати свою діяльність таким чином, щоб досягти нівелювання ризиків, мінімізації збитків і витрат, які пов'язано з організацією процесів матеріально-технічного забезпечення, виробництва продукції, транспортування, логістичного обслуговування та збуту, а також максимізувати рентабельність від реалізації. Насамперед вищезазначені завдання можливо здійснити за рахунок підвищення ефективності управління логістичною діяльністю підприємств з урахуванням аналізу його складових, їх взаємозв'язку та наявності прискореного і нерівномірного процесу цифровізації.

Встановлено, що доцільно розробляти й впроваджувати управлінські рішення за такими ключовими напрямками: управління закупівлями та поставками матеріальних ресурсів (розрахунок оптимального обсягу партії поставки матеріальних ресурсів, оптимізація закупівельної стратегії підприємства, удосконалення управління процесом закупівель з використанням методу багатокритеріальної оцінки вибору оптимального постачальника матеріальних ресурсів); управління транспортними потоками (впровадження інформаційних систем управління вантажопотоками, застосування автоматизованої обробки документів при оформленні процесу транспортування вантажів, розробка пропозицій щодо оптимізації завантаження

транспорту, використання інтернет-технології для автоматизації транспортних процесів); управління клієнтським досвідом (аналіз обсягів відвантаження продукції, прогнозування обсягів відвантаження продукції споживачам, розробка пропозицій щодо підвищення рівня логістичного обслуговування, формування системи контрактних взаємовідносин зі споживачами, удосконалення клієнтоорієнтованого підходу до обслуговування різних категорій споживачів у контексті концепції маркетингу взаємовідносин); управління збутовою діяльністю (обґрунтування доцільності застосування мережевого підходу до організації збутової діяльності підприємств; удосконалення механізму реалізації державно-приватного партнерства при управлінні збутовою діяльністю підприємств на основі організаційно-правової форми синдикату, методичного підходу до вибору оптимального каналу збуту готової продукції; визначення пріоритетних напрямів розвитку електронної комерції як дієвого інструменту просування продукції на ринок).

Ключові слова: логістичний менеджмент, логістичне управління, управління логістикою, управління ланцюгами постачань, маркетингово-логістичне управління, управління логістичною діяльністю, пріоритетні напрями, цифрові технології, інформаційні системи, ефект.

Shkrygun Yu. Management of Logistics Activities of Enterprises in the Context of Industry 4.0

In the modern conditions of digital economy and a large number of force majeure events, both economic and social, the issues of providing production with the necessary material and digital resources and their efficient use become especially relevant; improving the operational and strategic management of warehousing, inventories, differentiated transport flows, sales activities and customer experience.

In order to ensure the effective operation of enterprises should organize their activities in such a way as to avoid risk, loss and costs associated with the organization of logistics processes, production, transportation and marketing, customer focus, and maximize revenue. First of all, these goals can be achieved by improving the management of logistics activities of enterprises, taking into account the analysis of the components of the concept, their relationship and taking into account the presence of accelerated and uneven digitization process.

It is established that it is expedient to develop and implement management decisions in the following key areas: procurement and supply of material resources (calculation of the optimal volume of the supply of material resources, optimization of procurement strategy, improving procurement management using the method of multicriteria assessment) traffic flow management (introduction of cargo flow management information systems, use of automated document processing in the design of the cargo transportation process, development of proposals for optimizing transport loading, use of Internet technology to automate transport processes); customer experience management (analysis of shipment volumes, forecasting shipment volumes to consumers, development of proposals to increase the level of logistics services, formation of a system of contractual relations with consumers, improvement of customer-oriented approach to service of different categories of consumers in the context of relationship marketing); sales management (justification of the network approach to the organization of sales activities of enterprises; improving the mechanism of public-private partnership in sales management of enterprises based on the organizational and legal form of the syndicate, methodological approach to choosing the optimal sales channel for finished products; commerce as an effective tool for promoting products on the market).

Keywords: logistics management, logistics control, administration of logistics, supply chain management, marketing-logistics management, logistics activity management, priority areas, digital technologies, information systems, effect.

Шкригун Ю. О. Управление логистической деятельностью предприятий в контексте индустрии 4.0

В современных условиях цифровой экономики и большого количества форс-мажорных событий, как экономического, так и социального характера, особую актуальность приобретают вопросы обеспечения производства необходимыми материальными и информационными ресурсами и эффективного их использования; усовершенствование оперативного и стратегического управления складским хозяйством, запасами продукции, дифференцированными транспортными потоками, сбытовой деятельностью и клиентским опытом.

С целью обеспечения эффективной деятельности предприятия должны организовывать свою деятельность таким образом, чтобы достичь нивелирования рисков, минимизации убытков и затрат, связанных с организацией процессов материально-технического обеспечения, производства продукции, транспортировки, логистического обслуживания и сбыта, а также максимизировать рентабельность от реализации. В первую очередь, вышеупомянутые задачи можно осуществить за счет повышения эффективности управления логистической деятельностью предприятий с учетом анализа его составляющих, их взаимосвязи и наличия ускоренного и неравномерного процесса цифровизации.

Установлено, что целесообразно разрабатывать и внедрять управленческие решения по следующим ключевым направлениям: управление закупками и поставками материальных ресурсов (расчет оптимального объема партии поставки материальных ресурсов, оптимизация закупочной стратегии предприятия, усовершенствование управления процессом закупок с использованием метода многокритериальной оценки выборов) управление транспортными потоками (внедрение информационных систем управления грузопотоками, применение автоматизированной обработки документов при оформлении процесса транспортировки грузов, разработка предложений по оптимизации загрузки транспорта, использование интернет-технологии для автоматизации транспортных процессов); управление клиентским опытом (анализ объемов отгрузки продукции, прогнозирование объемов отгрузки продукции потребителям, разработка предложений по повышению уровня логистического обслуживания, формирование системы контрактных взаимоотношений с потребителями, усовершенствование клиентоориентированного подхода к обслуживанию разных категорий потребителей в контексте концепции маркетинга взаимоотношений); управление сбытовой деятельностью (обоснование целесообразности применения сетевого подхода к организации сбытовой деятельности предприятий; усовершенствование механизма реализации государственно-частного партнерства при управлении сбытовой деятельностью предприятий на основе организационно-правовой формы синдиката, методического подхода к выбору оптимального канала сбыта готовой продукции; определение приоритетных направлений коммерции как действенного инструмента продвижения продукции на рынок).

Ключевые слова: логистический менеджмент, логистическое управление, управление логистикой, управление цепями поставок, маркетингово-логистическое управление, управление логистической деятельностью, приоритетные направления, цифровые технологии, информационные системы, эффект.

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