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Contents

| | |
|--|---------|
| INTRODUCTION | 6 |
| KOULIK V.A. PhD (Economics), Professor, Professor of Logistics Department National Aviation University (Ukraine), ZAMIAR Zenon Dr. hab. Inż, Professor, Vice-Rector The International University of Logistics and Transport in Wroclaw (Poland) <i>SUPPLY CHAIN SPIRAL DYNAMICS</i> | 7 – 16 |
| MARCHUK V.Ye. Doctor of Engineering, Associate Professor, Professor of Logistics Department National Aviation University (Ukraine), Henryk DŹWIGOŁ PhD DSc, Associate professor, Professor - Organization and Management Silesian University of Technology in Gliwice (Poland) <i>INTEGRATED LOGISTICS SUPPORT FOR THE LIFE CYCLE OF BUILDING OBJECTS</i> | 17 – 25 |
| CHORNOPYSKA N.V. PhD of Economics, Associate Professor, Associate Professor at department marketing and logistics at Lviv Polytechnic National University (Ukraine), STASIUK K.Z. PhD student at department marketing and logistics at Lviv Polytechnic National University (Ukraine) <i>LOGISTICS POTENTIAL USAGE FOR RAILWAY TRANSPORT ENTERPRISES COMPETITIVNESS ASSESSMENT</i> | 26 – 38 |
| PRYMACHENKO H.O. PhD in Engineering sciences, Associate Professor, Associate Professor of the Department of Transport Systems and Logistics Ukrainian State University of Railway Transport (Ukraine), HRYHOROVA Ye.I. PhD student of the Department of Transport Systems and Logistics Ukrainian State University of Railway Transport (Ukraine) <i>RESEARCH STATUS OF AUTOMATION OF LOGISTICS TRANSPORT AND DISTRIBUTION PROCESSES</i> | 39 – 50 |
| DAVIDENKO V.V. PhD (Economics), Associate Professor, Associate Professor of Logistics Department National Aviation University (Ukraine), RISTVEJ Jozef PhD (Economics), Professor, Vice-Rector University of Zilina (Slovakia), STRELCOVÁ Stanislava PhD (Economics), Associate professor, Vice head of Department of Crisis Management University of Zilina (Slovakia) <i>UPDATING THE IMPLEMENTATION OF LEAN LOGISTICS IN A CHANGING ENVIRONMENT</i> | 51 – 56 |



- HRYHORAK M.Yu.** Doctor of Economics, Associate Professor, Head of Logistics Department National Aviation University (Ukraine), **TRUSHKINA N.V.** PhD (Economics), Associate Professor, Senior Research Fellow, Regulatory Policy and Entrepreneurship Development Institute of Industrial Economics of the National Academy of Sciences of Ukraine (Ukraine), **Tadeusz POPKOWSKI** PhD (Engineering), Associate Professor, Head of the IT team the International university of logistics and transport in Wroclaw (Poland), , **MOLCHANOVA K.M.** Senior lecturer at the Department of Logistics National Aviation University (Ukraine)
DIGITAL TRANSFORMATIONS OF LOGISTICS CUSTOMER SERVICE BUSINESS MODELS 57 – 75
- GOROKHOVA T.V.** PhD (Economics), Associate Professor, Associate Professor of Marketing and Business Administration Department State Higher Educational Establishment «Priazovskiy State Technical University» (Ukraine), **MAMATOVA L.Sh.** PhD (Economics), Senior lecturer of Economics of Enterprises Department State Higher Educational Establishment «Priazovskiy State Technical University» (Ukraine)
THE IMPACT OF E-COMMERCE DEVELOPMENT ON LOGISTIC SERVICE IN UKRAINE: PERSPECTIVES AND CHALLENGES 76 – 90
- KOSTYUCHENKO L.V.** PhD (Economics), Associate Professor, Associate Professor of Logistics Department National Aviation University (Ukraine), **SOLOMON D.I.** Doctor of Engineering, Professor, Rector Academy of Transport, Informatics and Communications (Moldova),
THE BASIC TERMINOLOGY OF THE MODERN MILITARY LOGISTICS 91 – 98
- LYTVYENKO S.L.** PhD (Economics), Associate Professor, Associate Professor of International Economics Department National Aviation University (Ukraine), **PANASIUK I.V.** Students of International Economics Department National Aviation University (Ukraine)
TRENDS AND PROSPECTS OF DEVELOPMENT OF THE GLOBAL AND NATIONAL AIR TRANSPORT MARKETS 99 – 109

INTRODUCTION

We are happy to invite you to get acquainted with the first issue of the new scientific and practical publication "Intellectualization of Logistics and Supply Chain Management".

We strongly believe that the launch of this magazine indicates the objective need to rethink a wide range of issues related to the development of theory and practice in logistics and supply chain management, awareness of the need to unite the scientific community and logistics practitioners, dissemination of modern knowledge and best practices for innovative development of the logistics services market.

The first issue of the magazine is published at a difficult time. The global coronavirus pandemic and the deep economic crisis have significantly worsened business activity in the world. Currently, global supply chains are collapsing, international trade is declining, and competition between global and regional logistics operators is intensifying. The most common thesis is that the world will never be the same again. Industry experts predict the emergence of new, more flexible and adaptive supply chain management strategies and approaches to logistics business process management. The trend towards collaborations, cooperation and unification of services is emerging, comprehensive proposals for clients are being developed. There is increasing talk about the need to build bimodal supply chains, which involves the development of different decision-making scenarios: the traditional approach - cost-effective efficiency, low risk, high predictability; a new approach "second mode" - rapid recognition of opportunities, adaptability, willingness to solve unexpected problems and look for new opportunities.

Radical transformations of the global and national markets for logistics services require appropriate scientific support. Logistics science has a special role to play in this process. Initiating the emergence of a new journal, we decided to focus on its coverage of problematic aspects of the formation and development of logistics systems at the micro, mezo and macro levels, supply chain management, digitization of logistics, methods and tools for optimizing processes in logistics and supply chains, sociopsychology relations and network interaction of enterprises using cloud technologies, artificial intelligence, e-learning, neural business process management systems, etc.

Therefore, we invite scientists, researchers and business representatives, as well as our colleagues from abroad, to cooperate and present the results of scientific research, to discuss and debate on them, to work together to develop the scientific theory of logistics and promote mutual intellectual enrichment.

We hope that the new scientific publication will become a theoretical guide for young researchers and representatives of other fields.

HRYHORAK Mariia
Chief Editor



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UPDATING THE IMPLEMENTATION OF LEAN LOGISTICS IN A CHANGING ENVIRONMENT

Volodymir Davidenko, Ristvej Jozef, Strelcová Stanislava. «*Updating the implementation of lean logistics in a changing environment*». The article is devoted to the analysis of the possibilities of implementing Lean Logistics in an unstable competitive environment. The article sets out the theoretical and practical aspects of the lean enterprise. The concept of Lean Production and its main goals are considered. The classical characteristic of the Lean Production concept to the main types of losses is highlighted. The concept of Lean Logistics is proposed as a Lean Production tool. The content of the concept of Lean Logistics is disclosed. The main reasons leading to the occurrence of logistic losses are considered. The analysis of basic tools and methods that can be applied in Lean Logistics. The possibilities of obtaining benefits from Lean Production tools, when applied in a logistics strategy, are considered. Lean Production methods used in logistics are proposed. The economic benefits of implementing Lean Logistics tools are presented. Recommendations for further research are provided.

Keywords: lean manufacturing, lean logistics, losses, types of logistics losses, value creation flows, logistics strategy.

Володимир Давіденко, Ristvej Jozef, Strelcová Stanislava. «*Актуалізація впровадження економічної логістики в умовах мінливого середовища*». Стаття присвячена аналізу можливостей запровадження Lean Logistics в умовах нестабільного конкурентного середовища. У статті викладені теоретичні і практичні аспекти ощадної діяльності підприємства. Розглянуто



концепцію Lean Production та її основну мету. Висвітлено класичну характеристику концепції Lean Production до основних видів втрат. Запропоновано поняття Lean Logistics, як інструмент Lean Production. Розкрито зміст поняття Lean Logistics. Розглянуто основні причини, що призводять до виникнення логістичних втрат. Проведено аналіз базових інструментів та методів, які можуть бути застосовані в Lean Logistics. Розглянуто можливості отримання переваг від інструментів Lean Production, при їх застосуванні в логістичній стратегії. Запропоновано методи Lean Production що застосовуються в логістиці. Наведено економічні переваги від запровадження інструментів Lean Logistics. Надано рекомендації подальших досліджень.

Ключові слова: *ощадне виробництво, ошадна логістика, втрати, види логістичних втрат, потоки створення цінностей, логістична стратегія.*

Владимир Давиденко, Ristvej Jozef, Strelcová Stanislava. «Актуализация внедрения бережливой логистики в условиях изменяющейся среды». *Статья посвящена анализу возможностей внедрения Lean Logistics в условиях нестабильной конкурентной среды. В статье изложены теоретические и практические аспекты бережливой деятельности предприятия. Рассмотрена концепция Lean Production и ее основные цели. Освещена классическая характеристика концепции Lean Production к основным видам потерь. Предложено понятие Lean Logistics, как инструмент Lean Production. Раскрыто содержание понятия Lean Logistics. Рассмотрены основные причины, приводящие к возникновению логистических потерь. Проведен анализ базовых инструментов и методов, которые могут быть применены в Lean Logistics. Рассмотрены возможности получения преимуществ от инструментов Lean Production, при их применении в логистической стратегии. Предложены методы Lean Production применяемые в логистике. Приведены экономические преимущества от внедрения инструментов Lean Logistics. Предоставлено рекомендации дальнейших исследований.*

Ключевые слова: *бережливое производство, бережливая логистика, потери, виды логистических потерь, потоки создания ценностей, логистическая стратегия.*

Introduction. The economical level of management in the enterprises with a high level of production organization is a prerequisite for awareness of each employee, their area of responsibility in the overall chain of value creation of the final product, in accordance with the requirements of all stakeholders. The concept of Lean Production is a tool that allows you to achieve a high level of production system and, as a result, increase production efficiency. In all industries, the concept of "savings production" is a recognized strategy of industrial development and is gaining a leading position on the market. Lean Production is a modification and consolidation of the experience of the Toyota Production System - TPS [4].

The beginning of the development of the TPS system is considered to be the need to restore industrial capacity and enter the international market. As a result of the formation of a conceptually new type of

production with a special approach to motivating the entire vertical organizational structure, with significant technological and organizational solutions, the tools of the Lean Production concept were developed, building a special system of mutually interested suppliers and sales. The transition to a general understanding and borrowing of the experience of TPS, identified a new productive direction in the formation of the concept of Lean Production [3].

The current state of reformatting of competitive approaches - struggle for consumers and minimization of expenses acquires special urgency of introduction of this concept. Such approaches are key tools in the implementation of the Lean Production concept, and aim to explore the possibilities of implementing the Lean Logistic concept.

The concept of Lean Logistics is improvement of operations at all levels and optimize supply chains by reducing costs, and is achieved through better inventory and



material management, as well as eliminating unnecessary steps by minimizing inventory and transportation.

Thrifty logistics allows to achieve a high level of organization of processes, eliminates unnecessary costs and helps to develop successfully in today's competitive environment. Thanks to the introduction and maintenance of cost-effective logistics, delivery is carried out in the shortest possible time, and the necessary raw materials and products do not accumulate in intermediate stocks.

Analysis of recent research and publications. Given the urgency of the conditions of operation of enterprises, there is a need to explore the possibility of using cost-effective logistics.

The interest of researchers in the problems of theory and practice of the implementation of savings logistics is observed in the works of Ukrainian and foreign scientists, in particular Jim Wumek, D.J. Bauersox, Jeffrey Liner, Michael L. George, R. Brayley, Michael Vader, Masaaki Imai, A.M. Gadzhinsky, OS Vikhansky, KA Gordeeva and other scientists. Scientists focused on identifying the main tools of savings production, analysis and evaluation of the implementation of savings logistics, highlighting ways to implement the studied approaches in enterprises. However, despite the considerable research of issues related to the methods of cost-effective logistics, they need constant study. Theoretical generalizations from these aspects are necessary for understanding of processes of management of the investigated tools, their characteristics.

The purpose and objectives of the study. The purpose of the article is to investigate the relevance of the introduction of cost-effective logistics in terms of restrictions on the functioning of enterprises.

Basic material and results. Lean Production is a special approach to enterprise management, which allows you to improve the quality of work by reducing losses, ie

those processes that reduce efficiency. The main goal is to build a production that can quickly respond to consumer demands and make a profit for the company, with any change in the market situation, creating a perfect production system, reducing intermediate stocks and more.

In the classical concept of Lean Production, the main types of losses include [2]:

- unnecessary movements of equipment and operators, leading to an increase in time and cost;
- unnecessary movements that lead to delays, damage, etc.;
- technological shortcomings that do not allow to implement in the product all the requirements of the consumer;
- unsold products that require unnecessary costs for accounting, storage, etc.;
- non-finished products, which are waiting in line for processing and thus increase the cost;
- any defects that lead to additional costs;
- surpluses of finished products, which increase the cost of storage.

Today, "savings logistics" meets the key requirements of all activities - improving the efficiency of logistics processes, given the limited resources. "Savings logistics" defines not only short-term measures to reduce transport, technological and human costs, but also - the optimization of logistics business processes to eliminate redundant functions and procedures that create additional work and, consequently, costs but do not create additional value.

Among the main reasons for such shortcomings are the inefficient organization of logistics processes, labor and outdated technologies, as well as the inability to implement a program to increase operational efficiency based on the principles of "economical production". To ensure success in improving operational efficiency, it is necessary to significantly improve the skills of production organization and disseminate



effective programs throughout the organization.

Enterprises that actively implement lean logistics tools consider it as a process of management of material and information flows, as well as human resources based on their optimization by minimizing costs. In practical terms, lean logistics is a tool for the most rational organization of flow processes with minimal costs of labor, material and information resources.

Due to the principle of strategic management of the enterprise, lean logistics should be considered as a strategic direction that allows the management of tangible and intangible flows in the supply process, by the most effective way to optimize costs and streamline the process of production, sales and related services both within one enterprise and for a group of enterprises [1].

The Lean Logistics implementation process should have a consistent strategy, which should rationally begin with the implementation of the 5S strategy.

It helps to maintain the organization and transparency of production processes, allows to increase the efficiency of the enterprise, improve working conditions, increase productivity, reduce the risk of downtime, reduce financial losses. As a result, there is an ability to get the following benefits:

- ☒ reducing the number of defective products;
- ☒ improving the quality of manufactured products;
- ☒ standardization and unification of jobs;
- ☒ reduction of time for performance of separate technological operations.

In parallel, it is necessary to build a chain of domestic consumers and suppliers. Chains of internal consumers and suppliers need to be transformed into a sequence of processes. This will make it possible to create flows of value creation, both for internal and external consumers. These flows need to be extended to suppliers, which will minimize one-time supply volumes with the maximum

approximation to the real needs of the process. Thus, there is a gradual process of introduction of the tool "Just in time" that allows to make production precisely in time and in the necessary quantity.

This sequence of actions will ensure high quality and reduce costs. Focusing its efforts on eliminating the causes of unnecessary costs, the enterprise builds a form of efficient business, which applies not only to production but also to other processes of the enterprise.

Continuous improvement of business processes of the enterprise and quality management, allows to increase production efficiency. The Andon and Poka-yoke systems allow to inform staff about problems that have arisen in a particular place. To do this, it is necessary to identify the main critical (risky) criteria of logistics processes, the levels of event alarms and develop response procedures depending on the degree of the problem. This approach can provide the following benefits:

- ☒ provide a quick response to problems;
- ☒ timely identify and get rid of iterative difficulties;
- ☒ gradually get rid of bottlenecks of the enterprise;
- ☒ develop an employees' sense of responsibility;
- ☒ increase motivation in order to improve quality;
- ☒ stabilize the production process.

It is also advisable to consider the methods of lean production which is used in logistics.

1. The organization of cargo transportation is a complex logistical process that concerns many key aspects of the activities not only of the carriers themselves, but also of other entities that ensure their organization and control. According to experts' survey, transportation costs range from 40 to 60% of the total price of products. Reducing the level of these costs is one of the most important tasks of transport logistics [5]. To solve this problem of lean production,



there is an offer to use a flow method. The essence of the method is that it is necessary to rethink the methods of work, types of equipment and tools used, so that nothing interferes the continuous flow [2].

2. The structure of information flows is the most important for logistics. To manage material and financial flows, it is effective to use information systems (EPR-systems). It is necessary to develop a single system of automation of information flows instead of an isolated information system of each department of the company. This can be done by applying the flow method from the concept of lean production.

3. For effective management of the warehouse control system, it is necessary to have all products ordered for a specific consumer after confirmation of payment. In addition, it is necessary to organize the work in such a way that the products could be delivered from the customs warehouse or from the supplier directly to the warehouse of the recipient [5]. Thus, the reduction of costs for loading and unloading operations, warehousing, storage, transportation and elimination of the risk of illiquidity is achieved.

4. The process of delivery of goods from production center to the consumer, or from the logistics center to outlets for further sale to customers. The main task is to ensure the availability of products in the warehouses of consumers, with a minimum level of stocks and minimum transport costs for order processing and their delivery. The solution of this problem may be the application of the principle of extraction, which is part of the

basic principles of lean production. Extraction is a method of production management, in which next operations signalize about their needs to previous ones [2].

With the perfect use of Lean Logistics tools, firstly the enterprise must get the economic effect, namely:

- optimal reduction of transportation costs;
- reduction of the passage of goods in the logistics chain;
- reduction of stocks at all stages of promotion of material flows;
- reduction of costs for cargo operations.

Due to the low research capacity of the Lean Logistics concept, there is a need for further search of effective tools based on the processes of the Lean Production concept.

Conclusion. In order to solve the problem of mass implementation and effective use of Lean concepts, it is necessary to actively encourage enterprises to spread the ideas of quality improvement through the development and further support of those who create this network. If one company develops a method that works, it must be disseminated so that all other stakeholders can use it as well. The participation of companies in the large-scale Lean distribution process should be considered as an investment in creation a culture of quality that in turn will be an investment in the company's future ability to accumulate profits.

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