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**PRINCIPLES AND METHODS FOR THE CHOICE OF MODES OF
TRANSPORT IN THE SUPPLY CHAIN**

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Abstract: The analysis of the choice of the type of vehicle is presented. The choice of the type of vehicle has a great importance for optimizing routes and reducing costs. Such a logistical task as the choice of the mode of transport is undoubtedly important. Since the reduction of these costs leads to a significant reduction in the cost of production.

Keywords: modes of transport, logistics, costs, delivery, vehicle.

The essence of logistics is the management of material, information and other flows in order to reduce costs in their promotion. The transportation of goods, which is a material flow, is an integral part of the existence of this and its accompanying flows.

In the modern world, the development of the service sector and technological progress, which allows the use of the most modern technologies, determine the widespread use of transport services. Consumers of this type of service can be offered various types of transport, which have different specifics and characteristics. The choice of the type of vehicle is of great importance for optimizing routes and reducing costs, so we have chosen this topic for consideration in the course work.

In the formation and development of human civilization, transport was of no small importance, since it connected economically significant territories and contributed to the study of new ones.

A significant part of the logistics operations in the movement of the material flow from the source of raw materials to the end user is carried out within the framework of this functional area of logistics. These operations also account for most of the costs. Transport logistics closely interacts with warehouse, production and other areas, ensuring the implementation of the main logistics tasks. The following tasks are set for transport logistics:

- choice of vehicle type;
- joint planning of the transport process with warehouse and production;
- joint planning of transport processes on various modes of transport (in the case of multimodal transport);
- ensuring the technological unity of the transport and storage process;
- determination of a rational route for the delivery of goods.

In the world of trade, the company with the ability to transport freight in the most cost and time efficient manner reigns supreme in their industry. Therefore; an essential part of transportation management lies in building an efficient supply chain from the six main modes of transportation: road, maritime, air, rail, and intermodal.

In some cases, the cargo owner (customer of transportation), when choosing a method of transporting goods, focuses on one, the most important criterion for him. A common example of the use of one criterion in solving this problem is the choice of air transport, based on the minimum time spent by the goods in transit. When solving the problem of choosing a mode of transport, it is important to prevent the substitution of criteria, which can lead to an incorrect decision.

Transport is an integral part of the logistics process, as evidenced by its participation in many logistics operations. During transportation, special attention should be paid to the choice of the type of vehicle, since the choice of the optimal route and, accordingly, the costs of transportation depend on it. Based on this, we can conclude that this problem is solved in conjunction with other logistics tasks. There are a large number of conditions under which the choice of a vehicle can be made. The solution of this logistical problem in each specific case depends on the characteristics of the cargo, the requirements for the speed of its delivery, the geographical location and the technical capabilities of the sender and recipient.

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Transportation in one way or another may be limited by geographic location, weather conditions or poor development of any mode of transport in the area. So, for example, the delivery of goods by river transport is carried out only during the navigation period, and the delivery of goods to hard-to-reach areas is most often carried out by air. The choice of the mode of transport is carried out on the basis of a comparison of quantitative and qualitative indicators, among which some are priority, while others are secondary. Comparison takes place according to priority indicators, and only then according to the remaining ones.

There are 4 principles for choosing a mode of transport [1].

The first and fundamental principle is that the choice of mode of transport or method of movement is made by the consumers of transport services on their own, in contrast to the previously existing centralized distribution of freight transport. This means that transport workers must learn how to sell transport services in a competitive transport market.

This implies the second principle – the main criterion for choosing a mode of transport is the cost of consumers and the quality of transport services, including accessibility, speed, safety, environmental friendliness, comfort and other characteristics.

The third principle is the need to ensure the comparability of the cost and natural indicators of the compared transportation options. This implies the mandatory inclusion of all cost elements along the entire path of cargo movement from the sender's warehouse to the recipient's warehouse, including possible intermediate transshipments of cargo to other modes of transport. In addition, it is necessary to bring into a comparable form the differences in the structure of costs by modes of transport and operations of the

transportation process. This applies to the comparable accounting of infrastructure maintenance costs, costs at the initial and final points for preparing cargo for transportation, transportation and export of cargo and other costs that are taken into account in different ways or are not taken into account at all (such as the road component in vehicles) in the cost price. transportation by means of transport. All calculations for delivery options must be performed for the same volume of traffic between the same start and end points of movement.

The fourth principle is to ensure reliable, objective and sufficient awareness of consumers of transport services about the capacity, quality and cost of these services, thanks to the presence of a good forwarding or branded customer service. This "norm" of information is mandatory.

There are two methods for selecting the type of vehicle [2]:

1. Method for calculating the economic effect of the selected mode of transport for a specific delivery;
2. Method for determining rational spheres or equally advantageous distances for a particular mode of transport.

In the first case, the payment for the carriage of goods on a specific mode of transport is determined by the formula (1):

$$C_i = T_{lu} + T_{ie} + T_{if} + T_c + l + T_{ad}, \quad (1)$$

where C_i – the cost of cargo transportation by the i -th mode of transport;

T_{lu} – the cost of loading and unloading operations;

T_{ie} – the cost of importing and exporting goods to the main mode of transport;

T_{if} – expenses for initial–final operations;

T_c – the cost of moving cargo;

l – transportation distance;

T_{ad} – additional expenses.

Additional costs may include costs for certain types of transport, such as: special packaging, insurance premiums, storage fees and more. Based on the data obtained, it is possible to determine the most profitable transportation option for each specific cargo by comparing the costs for all modes of transport. It is also possible to calculate the profit received from the application of a new mode of transportation compared to the current one (formula (2):

$$\Delta E_i = (C_{current} - C_i) * Q, \quad (2)$$

where ΔE_i – Efficiency of the i -th transportation option compared to the current one;

$C_{current}$ – transportation costs for the current option;

C_i – transportation costs for the i -th option;

Q is the volume of transported cargo in tons.

This option allows you to evaluate all the factors that affect the cost of transportation and most accurately determine the cost-effective option, which is good for small enterprises with a small geography of deliveries. However, this method is very cumbersome, requiring significant time and labor costs, which is extremely inconvenient with a large number of items. In this case, it is more convenient to use the second method – estimates of equally advantageous distances. This method, subject to the approximate equality of the costs of transportation by two modes of transport, allows you to find the distance to which it is more profitable to use one mode of transport, and after which another.

Equally advantageous range for two modes of transport is found by the Formula (3):

$$l_p = |(C_{if1} + Z_{rel} * C_{rel}) - C_{if2}| / (C_{t2} - C_{t1}), \quad (3)$$

where l_p – equally advantageous range;

C_{if1} – costs for initial and final operations of the 1st mode of transport;

Z_{rel} is the number of reloading operations;

C_{rel} – costs for transshipment operations from one mode of transport to another and back;

C_{if2} – costs for initial and final operations of the 2nd mode of transport;

C_{t2} – the cost of moving goods on the 2nd mode of transport;

C_{t1} – the cost of moving goods on the 1st mode of transport.

Objective information about transport services and costs allows consumers to make their own comparative calculations on the logistical optimization of their transport costs, rationalize transportation (for example, reduce the volume of transportation by increasing the useful part of the substance in raw materials, eliminate cross-traffic, etc.), place orders for supplies more efficiently, identify more profitable markets for their products, taking into account the value of transport services, and manage the transport component in the price of goods and services.

Price in many cases is a fundamental factor for most consumers of transport services. Since the cost of transporting goods is a significant part of all costs, the optimization of these costs can lead to a significant reduction in the cost of production, thereby increasing its attractiveness to buyers.

The ability of the transport service provider to modify the contract in accordance with the wishes of the client also contributes to the preference of one mode of transport over another. This ability is called delivery flexibility and includes the willingness to change delivery conditions, provide different levels and types of services, provide a delay or installment plan, and more.

Reliability of delivery is essential when planning a shipment. In most cases, priority will be given to transport with a greater degree of reliability at equal, and sometimes even

higher costs. In turn, such an indicator as reliability consists of a number of sub-indicators: timeliness, safety, risk, compatibility and image.

Timely delivery of goods at the present stage is extremely important. This is especially true for the “just in time” system, when the slightest delay in cargo can lead to a stop in the production or sale of goods, and the cargo that arrived in advance will lead to additional storage costs. In order to achieve maximum synchronization of all logistics processes, it is necessary to reduce the uncertainty in terms of delivery of goods.

When choosing a type of vehicle, it is necessary to take into account its compatibility with other vehicles. This concept also includes the fact that it is necessary to coordinate not only the possibility of sending a specific mode of transport, but also the fact that the recipients of the cargo have the opportunity to accept it.

The correctness of the choice made must be confirmed by technical and economic calculations based on an analysis of all costs associated with the transportation of various modes of transport.

The challenges faced by transport logistics are primarily related to the rapid response to customer expectations. That's why flexibility is so important, it means delivery efficiency and speed of adaptation to new conditions. These factors are of key importance when choosing a supplier.

The above principles for choosing the mode of transport to a certain extent predetermine the methods for choosing the mode of transportation, which differ mainly in the completeness of taking into account certain compared factors (indicators). At the same time, the general approach is that, first, natural (mainly quantitative) factors are compared, and then cost calculations are carried out. In modern conditions, the form of ownership of the compared vehicles, the system of transportation insurance and banking services to the clientele are of great importance. The choice of the mode of transport is greatly influenced by the presence of effective transport and logistics schemes for the delivery of goods, as well as the presence of intersectoral contractual relations between transport companies and cargo owners within financial and industrial groups and at the regional level.

Based on the considered and studied theoretical data, we can conclude that such a logistical task as the choice of the mode of transport is undoubtedly important. Since the reduction of these costs leads to a significant reduction in the cost of production. The choice of mode of transport requires the study of not only the features of various vehicles, but also the study of geography. Important attention should be paid to the quality of services of transport companies, to study transport tariffs. Close attention should be paid to the quality of services of transport companies, to study transport tariffs. Based on the data obtained, it is possible to conduct an analytical and economic analysis of the choice of a priority mode of transport.

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СОВРЕМЕННЫЕ ТРЕНДЫ В МАРКЕТИНГЕ И РЕКЛАМЕ
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Аннотация: Современные технологии, изменения в поведении потребителей и динамичная бизнес-среда приводят к постоянному развитию маркетинга и рекламы. В данной статье рассматриваются современные тренды в маркетинге и рекламе, такие как переход к цифровым и мобильным каналам, персонализация, удовлетворение ожиданий потребителей, использование новых технологий и инструментов, таких как искусственный интеллект, автоматизация маркетинговых процессов и аналитика данных. Также рассматриваются важные аспекты, такие как контент-маркетинг, социальные медиа, инфлюенсер-маркетинг и омниканальный маркетинг. В статье подчеркивается необходимость гибкости и адаптивности компаний к изменяющейся среде, а также проведения постоянного мониторинга рынка и оптимизации маркетинговых стратегий для достижения успеха на рынке.

Ключевые слова: маркетинг, реклама, тренды, цифровизация, продвижение, продажи.

Маркетинг и реклама являются важными инструментами в современном бизнесе. Они помогают компаниям привлекать внимание потребителей, устанавливать отношения с клиентами и повышать продажи. Однако, маркетинговая и рекламная среда постоянно меняются под воздействием технологического развития, социокультурных изменений и изменений в поведении потребителей. Мы рассмотрим современные тренды в маркетинге и рекламе, которые оказывают влияние на развитие современных бизнес-стратегий.

Тренд 1: Цифровой маркетинг

Цифровой маркетинг становится все более популярным и эффективным инструментом продвижения продуктов и услуг. Он включает в себя использование различных цифровых каналов коммуникации, таких как социальные сети, поисковые системы, электронная почта и др. Одним из ключевых трендов цифрового маркетинга является персонализация. Компании все больше стараются адаптировать свои маркетинговые кампании под индивидуальные потребности и