

Theoretical Aspects of the Transport Logistics System Management

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Abstract- This article discusses the theoretical aspects of the management of the transport logistics system, it reveals the essence of the concept of "transport system", "transport and logistics system", "transport service" and "transport and logistics service". The main types of transport and logistics services for the transport of goods and passengers are classified. The author proposed a methodology for assessing the economic efficiency of TLS.

Keywords: Transport system management, transport-logistic system, management efficiency, logistics services.

1. INTRODUCTION

In a competitive and unstable environment, it is necessary to promptly respond to deviations from the normal activities of the joint-stock company. Cash flow management is the tool with which you can achieve the desired result of the AO activity - profit. These circumstances determine the relevance of the research topic.

2. LITERATURE REVIEW

In fact various aspects of transport logistics and the problems of the formation of TSL are presented in the works of foreign and domestic authors such as D. Kloss and D. Bowersox, T. Goldsby, A. Harrison, A. Chernovalov, D. Kurochkin, V. Bulavko, P. Nikitenko, I. Elovoi, etc. Despite the great attention of scientists to the issues of logistics, the current conditions for economic development dictate the need for the development of theoretical aspects of logistics and the constant updating of methods and methodology, the development of new assessment methods that are based on the principles of logics and took into account the specifics of the country's development. [3]

Analysis of existing methods of assessing the effectiveness of logistics systems has made it possible to identify their shortcomings and bottlenecks for the evaluation of TL. Each method is isolated does not give a full-scale evaluation of the TLF. Existing methods are used mainly to assess the system of cargo transportation and do not allow assessing the related services and all elements of the TL. It should be noted that in most cases, the effectiveness evaluation is carried out for enterprises, logistics operators or regions, i.e. at the micro and macro levels. Therefore, it is urgent to develop a methodology for assessing the economic effectiveness of the TLS of the national economy.

3. ANALYSIS AND RESULTS

The transport system is understood as a complex of various modes of transport, which are in interaction and dependence when carrying out transport operations. Also, the transport system is defined as the transport infrastructure, transport enterprises, vehicles and management in the aggregate.

A new approach to transport, as an integral part of a larger system, led to the expediency of considering the whole complex of the transportation process: from the consignor to the consignee, including cargo handling, packaging, storage, unpacking and information flows accompanying the delivery. This caused the need to create a transport and logistics infrastructure (special logistics centers) and consider it as an integral part of the TLS. In contrast to the transport system, which involves the study of a complex of different modes of transport that are dependent on and interacting with the transportation, the addition of the term "logistic" means the need to consider end-to-end optimization of transport from the sender to the consignee in order to minimize time and cost costs.(Fig.1)

Consequently, the transport service can be defined as a type of economic activity of transport, aimed at satisfying the needs of consumers and characterized by the availability of the necessary technological, financial, information, legal and resource support. In addition to the basic transport service, consumers are provided with related services. Ancillary service is a service provided to a passenger, consignor or consignee by organizations of the transport complex or by citizens who are not directly connected with transportation. [1]

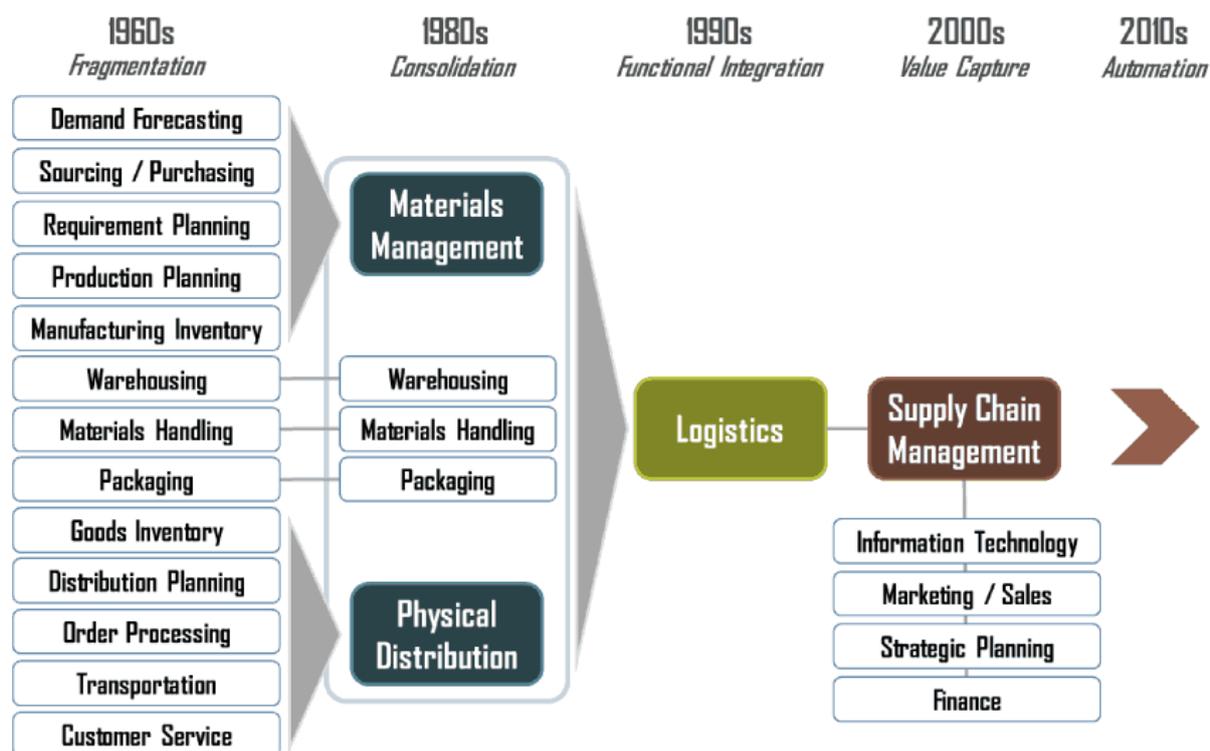


Fig.1. Stages of logistics development
 Source: https://transportgeography.org/?page_id=4438

Formation of the TLS calls for the definition of the terms "logistics service" and "transport-logistics service". According to the draft law of the Republic of Uzbekistan "On logistics activities", a logistics service is understood as a complex of logistical operations, as a result of which qualitative changes in the material flow (movement and transformation) occur in the sphere of commodity circulation. Transport and logistics services - services related to the organization of transportation (movement) of goods, passengers and luggage.

The main transport-logistical services are: preparation of cargo for transportation (determination of cargo weight, packing, packing, marking, packing, sorting of cargo); loading (unloading) of cargo (ensuring the performance of loading and unloading operations, including cargo transshipment with mixed transportation, securing, sheltering, bundling of cargo, and provision of devices necessary for these purposes); organization of the process of cargo transportation by any mode of transport; registration of shipping, freight and other documents required for the carriage of goods; cargo escort during transportation and other services to ensure its safety; conclusion of cargo insurance contracts; coordination of the scheme (route, sequence) of cargo transportation by several modes of transport with mixed transportation; consolidation and deconsolidation of shipments; presentation of cargo and accompanying documents to the customs authorities; checking the number of seats, mass and condition of cargo; cargo storage; payment of duties, levies and other payments related to rendered forwarding services; realization of settlements with participants of transport-forwarding and transport activity; consulting on the organization of cargo transportation; the provision of information services related to the transport of goods.(Fig.2)



Fig.2. Supply chain execution.

Logistics services rendered to passengers when transporting them on different types of transport envisage: the issuance of travel documents for intra-republican and international communication; reservation of places in vehicles; the formulation of the delivery of tickets to the house or office; reception and delivery of luggage and cargo; obtaining reference information; storage of luggage in an automatic storage room; storage of large items and items; transmission of announcements on the station's radio network; notification of the recipient about the arrival of baggage by phone, mail, telegraph; control weighing of hand luggage in case of a conflict situation with the carrier; household and commercial services, as well as catering services (cafes, restaurants); servicing of passengers in vehicles; storage of forgotten and found things. [2]

The methodological basis of end-to-end management of material flows, as well as the concept of logistics in general, is a systematic approach, which is the direction of the methodology of scientific knowledge, which is based on the consideration of the object as a system: an integral complex of interrelated elements; aggregate of interacting objects; the totality of entities and relationships.

For developing a methodology for assessing the effectiveness of the operation of the TLS based on the system approach, the following steps can be distinguished:

Step 1: Determine the purpose of the system. The main goal of TLS is the maximum economic effect with sufficient level of reliability and quality of services within the limits of available resource constraints.

Stage 2: setting requirements that the system must meet based on the analysis of the purpose of the operation. To achieve this goal, it is necessary: improving the organization of export and increasing transit cargo flows; expansion of the list of transport and logistics services and ensuring their high quality; reduction of time costs for transportation of goods; ensuring high speed of processing and moving cargo; reduction of transport costs; information and analytical support of cargo; creation of conditions for high-quality passenger service.

Stage 3: The allocation of subsystems and their organization in a unified system. Subsystems of TLS: various modes of transport; subjects and objects of transport and logistics infrastructure; logistical flows that accompany the material flow.

Step 4: Determination of financial indicators for the main types of services (transport and logistics) in the

structure of the revenues of the transport system and TLS.

Stage 5: Determination of costs for the establishment of TLS, which will allow to evaluate the profitability of the operation of the TLS. A significant part of logistics costs are transport costs (modernization of infrastructure of all types of transport, renewal of rolling stock, construction of transport and logistics centers), storage costs (construction of class warehouses).

Stage 6: Development of a sequence of assessing the effectiveness of the formation and functioning of the TL. Using the methodology based on the calculation of net profit and the assessment of the level of profitability of invested capital makes it possible to assess the TL in the warehousing and transportation of goods, but does not allow the inclusion of associated logistics services in the valued services (on declaration and clearance of cargo, towing services, , etc.), which does not give a complete picture of the functioning of the TLS. Therefore, the proposed methodology is aimed not only at assessing the effect of traditional transport services carried out by all modes of transport, but also on the allocation of a group of logistics services that allow to obtain an additional effect by saving costs and obtaining additional income (synergistic effect).(Fig.3)

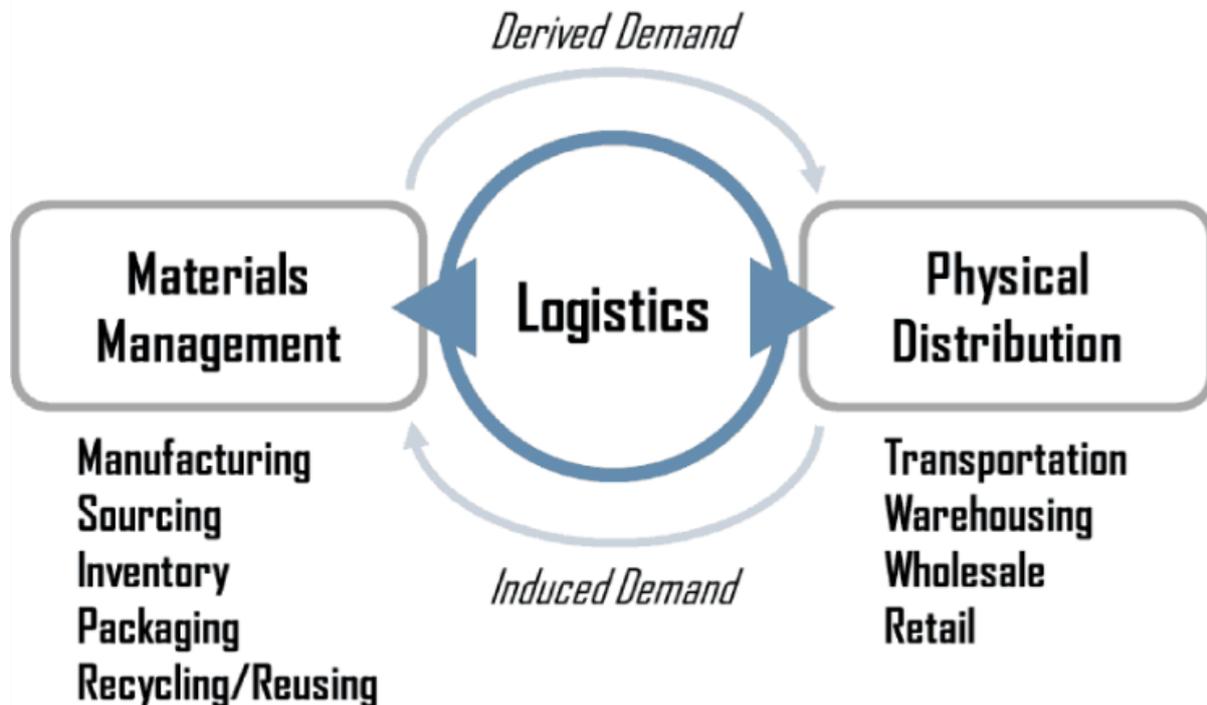


Fig.3.Relations of material management and distribution.

Synergetic effect - the summing effect of the interaction of two or more factors, characterized by the fact that their action significantly exceeds the effect of each individual component in the form of their simple sum. The main condition for the appearance of a synergistic effect is the presence of a system. All elements of the system interact with each other and, in the process of interweaving their functional manifestations; an effect appears that promotes a qualitative or quantitative jump in the properties of the system. The synergistic effect is the mutual reinforcement of the connections between the components when they work together. The positive effect of the development of the TLS is created by saving costs on the construction of warehouses, storing and inventorying, reducing the volume of handling operations, reducing cargo losses due to a reduction in time for their transportation and storage, as a result of accelerating the turnover of rolling stock, for infringements of regularity of receipt of the information in a destination of cargo, increase of a level of service. [5]

For TLS, which provides a wide range of services, there are problems in allocating revenues and in spacing costs for individual components of the complex of services, and in this connection it is proposed to allocate a group of transport (T) and logistic (L) services for each mode of transport (Table 1.)

The method of assessing the effectiveness of the transport-logistic system (3) assumes the calculation of the effect of the transport (ETS) (1) and transport-logistic systems (Ets) (2):

$$\mathfrak{E}_{tc} = \sum_{t=1}^n T$$

Where n is the number of private indicators accepted for counting, t is transportation services,

T - Incomes from rendering of transport services by all kinds of transport.

$$\Theta_{TC} = \sum_{t=1}^n T + \sum_{l=1}^n L + \sum_{c=1}^n C$$

where n is the number of partial indicators taken for calculation,

t - transport services,

T - incomes from rendering of transport services by all kinds of transport;

l - logistic services, according to the classifier,

L - income from the provision of logistics services,

C - synergistic effect,

c - indicators of the effect of the formation and functioning of the transport and logistics system.

$$\Theta = \frac{\Theta_{TLS} - \Theta_{TS}}{\Theta_{TS}} * 100\% \quad (3),$$

where Θ - is the effectiveness of formation of TLS,

Θ_{tls} - effect of functioning TLS,

This is the effect of the functioning of the transport system. [4]

The proposed valuation methodology is based on the aggregate analysis and calculation of partial criteria (revenues from all types of transport and additional effect from the provision of logistics services), which makes it possible to improve the accuracy of the TL analysis, assess the functioning of the TL and the profitability of its operation. The formation of TLS will significantly improve the reliability and efficiency of operational planning in all phases of the transportation process and obtain an additional effect. This effect is characterized by cost savings and additional income generation (synergistic effect).

Step 7: Calculation of the effectiveness of the operation of the TLS based on the proposed methodology.

Step 8: Obtaining the actual data and setting the upper limit (the maximum possible values) of the indicators (based on the experience of a number of countries and forecasts) in order to identify potential opportunities for improving the effectiveness of the TLS by developing and implementing relevant activities.

4. CONCLUSIONS

Task of forming a national transport and logistics system is one of the priorities in the general economic policy of the Republic of Uzbekistan. The developed TLS will ensure the effective use of the economic potential of the republic and its integration into the world economic system. TLS is a complex system that performs transport and logistics operations in accordance with the requirements of clients at minimum (given) time and cost costs, consisting of the following subsystems: various modes of transport; subjects and objects of transport and logistics infrastructure; logistical flows that accompany the material flow. Formation and development of the TLS involves an assessment of the effectiveness of its operation. The proposed methodology allows economic assessment of not only traditional transport services carried out by all types of transport, but also logistics services, as well as to assess the synergistic effect from the operation of the TLS.

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