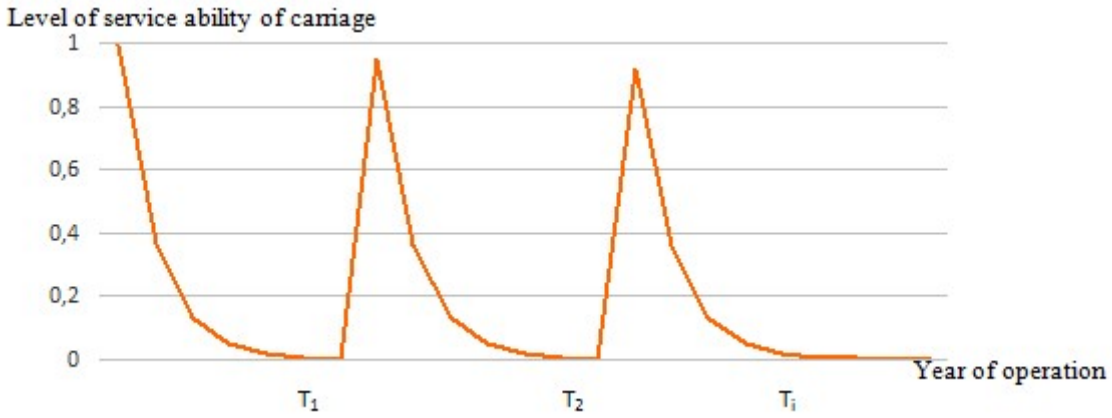

Figure 2. Dependence of the level of service ability of a carriage to operate under load on the service life of a carriage and carrying out appropriate repair and maintenance

Thus, taking into account the above-mentioned information and carrying out well-timed necessary repair and maintenance it is possible for any carriage to determine its service ability to operate in commercial terms for loading certain freight.

[1] Ломотько Д. В., Ковальов А. О., Ковальова О. В. Formation of fuzzy support system for decision-making on merchantability of rolling stock in its allocation //Eastern-European Journal of Enterprise Technologies. – 2015. – Т. 6. – №. 3 (78). – С. 11-17.

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ORGANIZATION OF CONTAINER RAIL TRANSPORT USING LOGISTIC COGNITIVE TECHNOLOGIES

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The basis of the infrastructure of EU policy is the transformation of the national transport systems into a single trans-European transport network (Trans-European Transport Network, TEN-T). This can be done with the use of cognitive technologies. The global trend is associated with an increase in the volume of container shipments and the formation of large container shipping companies.

In the process of shipping containers, national supply chains are limited to one country, and international ones to several countries. Therefore, organizers, suppliers, customers, and all parts of a supply chain can be located within one or more countries. Due to the complexity of such transnational systems, the processes of managing container flows should be based on the principles of Supply Chain Management (SCM)

with the organization of strategic alliances. This can be realized by introducing cognitive technology VMI (Vendor-Managed Inventory).

Cognitive system (from the Latin Cognito - cognition, learning, familiarization) - a multi-level system that provides all the basic cognitive functions of a living organism. This system ensures that all stages of the process of cognition, and also includes a number of mandatory subsystems - perception, attention, memory, thinking, etc. Cognitive technologies "imitate" the human thinking activity and often underlie the "Internet of things" or the "smart house" ideology, using models with fuzzy logic or with neural networks.

The cognitive model of the logistics system determines the structure and functions of the decision support system by the management personnel. The formalization of the cognitive model is carried out in the form of a tuple

$$CLS=<G, X, U, \psi>, \quad (1)$$

where $G=<V, E>$ – oriented graph; $V=\{v_i\}$ – array of vertices of the graph (elements of the studied logistic system), i=1, 2, ..., k; k – number of vertices of the graph; $E=\{e_{ij}\}$ – array of arcs (relations of elements of the logistic chain) between vertices, $i,j \in [1, k]$, e_{ij} reflects the degree of influence (both positive and negative) from vertices V_i to vertices V_j; X – array of parameters of vertices on a given time interval $T_n=\{t_1,..., t_n\}$, $X :V \rightarrow \psi$, $X_{Vi} =\{g(x_i \in \psi)\}$; $g \in [0;1]$ – vertex parameter V_i in the form of a single Heaviside function; ψ – space of possible parameters of vertices; $U=f(X, E)$ – arc-transformation functional, $U: E \times X \times \psi \rightarrow R$ (R – array of real numbers). In fact, dependence $f(X, E)$ may be not only functional, but also a stochastic, in the form of regression equations, or as an expression of the fuzzy. The definition of parameters $f(X, E)$ represents management in the logistics system and can include the preferences of the person making managerial decisions.

Formal rules, standards and technical regulations between the elements of the supply chain of container cargo can be radically different. In the EU, harmonization of rules made by creating regulations to include all modes of transport in such logistic chains according to the directive of the "intelligent" transport systems (Directive 2010/40/EU of 07.07.2010 was) based on the ISO 14813-1 standard. European legislation treats intellectual transport system as a system, which uses information and communication technologies in the field of transport. Such a system should be able to interact with other modes of transport, including infrastructure, vehicles, other participants in the system using the transport regulation system.

Objectives creating cognitive transport systems associated with receiving, processing, and intellectual using logistic flows of data, decision-making process in complex situations. The main components and participants of cognitive transport systems are:

- transport infrastructure;

- vehicles;
- remote control systems (telematics) with transport infrastructure elements and vehicles;
- intelligent information technologies with the ability to remotely manage objects;
- analytical centers for the collection and processing of logistics information;
- centers for decision making and management of logistical flows.

Thus the container transport system on domestic railways with advanced logistics cognitive technologies will be able to reach a fundamentally new level of development.

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THE EFFICIENCY OF CONTAINERS DELIVERY FROM CHINA TO THE EUROPEAN UNION THROUGH UKRAINE ON THE CASPIAN-BLACK SEA ROUTE

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Ukraine, as a country with significant transit potential, after rapid loss of transit cargo flows over the past ten years, has real prospects to regain the leading role in the global supply chain for containers between markets of China and the European Union. In addition, these markets themselves are interested in diversifying the supply chain of its products not only through Russia and possibly Iran, which in the conditions of the existing sanctions cannot be reliable partners. And one of the priority directions may be