

UDK 656.2

THE IMPORTANCE OF FORECASTING VOLUMES OF CARGO TRANSPORTATION ON THE RAILWAY

H. Bohomazova, PhD (Tech.), O. Liuta
Ukrainian State University of Railway Transport (Kharkiv)

The main task of railway transport is timely satisfaction of the transportation needs of the country's economy. Despite the fact that in recent years there has been a sharp decrease in the volume of transport work, railway transport has retained its leading position in the overall transport balance of cargo transportation in Ukraine. In the unstable and unpredictable economic, political and social conditions, railway transport continues to remain a constantly working and attractive mode of transport for most cargo owners.

Since the economy in Ukraine largely depends on the work of the railway, a rash management decision will have a negative impact on other industries. Without the ability to predict the future, normal functioning of transport and obtaining maximum profit is impossible. Today, the task of forecasting is a relevant and integral part of the daily work of many companies. The rational planning of railway transport is greatly influenced by the forecast values of transportation volumes.

Forecasting the volume of transportation by rail is still not widely practiced. Modern conditions of transport operation require increasing the area of forecasting and improving the methodology and methods of developing forecasts. The forecasting model should provide the possibility of flexible adaptation of production indicators to fluctuations in demand and take into account possible risks arising during the transportation of goods. This, in turn, will reduce the economic losses of railway transport and increase profits.

The problem of the development of the system of forecasting the volume of cargo transportation in modern conditions has become particularly urgent. Analysis and forecasting of the volume of cargo transportation is the most important tool for making effective management decisions, choosing the optimal strategy for the development of the industry, determining the necessary technical equipment of railways, planning the need for material, labor and financial resources, predicted possible risks. Such actions should positively affect the attraction of customers to railway transport.

In order to improve the accuracy of forecasting results and increase the speed of time series data processing, the most promising is the creation of combined models using artificial neural networks, which has been repeatedly proven by scientists in various fields of activity.

This method of forecasting has high adaptation properties to variable input data due to self-learning. The main advantage of neural network models is non-

linearity, that is, the ability to establish non-linear dependencies between future and actual values of processes. Other important advantages are: adaptability, scalability and identity of their analysis and design. Therefore, this forecasting method was used in the work.

For effective management decision-making, the future values of the time series were first predicted. Time series analysis helped determine the nature of the series and predict future values of the time series. The detection of the structure of the time series is used to build a mathematical model for forecasting the volume of cargo transportation by rail. When forecasting a time series, a functional dependence is defined that adequately describes the time series. The goal of creating a forecasting model is to obtain such a model for which the average absolute deviation of the actual value from the forecast tends to the minimum for a given horizon, which is called the warning time. After the time series forecasting model was defined, the future values of the time series were calculated, as well as their confidence interval.

The forecast model formed using a neural network belongs to the high-accuracy class. Such a mathematical apparatus can be used to find predictive data on railway transport.

UDK 656.2

ANALYSIS OF THE LOGISTICS STRUCTURE OF INTERNATIONAL CONTAINER TRANSPORTATION

H. Bohomazova, PhD (Tech.), O. Shaihorodska
Ukrainian State University of Railway Transport (Kharkiv)

Container transportation is the basis of international trade. There is an exact science behind the timely and accurate transportation of cargo in containers by shipping routes around the world. This paper explores many aspects of container shipping, including the different modes of container shipping, the variety of containers, and more. The transportation of goods in containers makes it possible to unify transport technology, which makes this type of cargo delivery very attractive not only for sea lines, but also for motor vehicles and railways. Thanks to the versatility of containers, it is possible to transport almost all types of cargo. Container transportation of goods is rightfully considered not only the most economical, but also the most reliable way of delivering goods. Thanks to the application of modern logistics technologies and solutions, container transportation of goods makes it possible to ensure fast delivery with fewer