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## Model of Requirements to a Resource Providing System to Maintain Buses and Train Drivers in the Motor Transport Companies Engaged in Passenger Transportation

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### Abstract

The article deals with the issue of optimizing resources in a passenger motor transportation company. The resource providing is necessary to maintain the rolling stock and the driver's pool. The issue is examined in terms of providing comfort, meeting the safety requirements, reliability of the rolling stock and the driver pool. The work objective deals with developing a technique to plan, to manage resources, to assess results and to define directions for sustainable improvement. The novelty of the approach involves using ISO 9000 standards as a basis and a set of indicators to assess the activity in the motor transportation company.

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*Keywords:* passenger traffic; quality; rolling stock and the driver pool; resource providing; process approach

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### 1. Introduction

The activity of the passenger motor transportation company is mainly aimed at rendering passenger transportation services. Under current conditions the issue of improving the quality of these services deals with providing comfort, meeting the safety requirements, ensuring the reliability of the rolling stock [Glumov (2014)<sup>1</sup>] and so on.

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## 2. Main text

According to recommendations given in standards of GOST R ISO 9001 series, the development of the quality management systems starts with definition of the processes, with peculiarities involved, with the steps of implementation, with sequence and interaction of these processes. From this point of view it is necessary to examine a system of forecasting and planning the quality of the rolling stock used by the motor transportation company [Glumov and Yakubovskiy (2014)].

This process approach gives an opportunity to approach the object of studies in a more structured manner. It is necessary to define consumers and suppliers in the processes of maintaining the rolling stock and developing the driver pool to engage into passenger transportation, to measure the inputs and outputs of these subprocesses, to designate responsible persons and analyze their interaction algorithm to manage the process.

Thus, the development of the technique enabling to plan, to manage resources, to assess results and to define directions for future improvement of the processes of maintaining the rolling stock and developing the driver pool for effective passenger transportation is topical.

The application of the technique developed enables assessing and improving further to the quality of the rolling stock and the driver pool due to more purposeful resource distribution to provide the activity of the motor transportation company.

The methods of the quality assessment of the rolling stock in the area of automotor transportation are based on assessment of the processes of maintenance and repair (MandR) in a number of the existing operations [Avdonkin (1985), Kuznetsov (1990)]. These assessments are based on examining the issues dealing with the pattern of changing the technical status of cars and effects of car operations on the car status. At the same time this approach fails to analyze such indicators as the availability level of the rolling stock from consumer perspective. This approach estimates only economic indicators of the operating efficiency of the rolling stock. The general indicators of the quality of service of passenger transportation are considered in studies by Jan Cibulka (1987), but there is no assessment of the processes used to evaluate these indicators. It complicates making an assessment of the quality of operations at the passenger motor transportation company, and, to be more precise, hinders making conclusions on benchmarked resource providing level and degree of availability of a motor transportation company to engage into passenger transportation.

Fig. 1 shows an interaction scheme of the main and auxiliary activity types (the process map) of the passenger motor transportation company [Yakubovskiy and Glumov (2007)]. The performance of passenger transportation and degree of availability of the rolling stock and the driver pool are the main processes here. The other processes are treated as auxiliary providing the main activity of the entity with resources having a certain quality as their final product.

Optimizing the system of improving the status of the rolling stock and the competence in the driver pool is an important task of improving operational efficiency in the motor transportation company. The quality assessment of the final product is made from the standpoint of the processes of the quality management system [Cianfrani et al. (2002)]. In this case the ISO document framework recommends considering four sets of processes: the management responsibility, resource management, the life cycle processes and measurement, analysis and improvement.

The management responsibility process is connected with developing and implementing strategic and operational management plans. This issue definition was not considered when developing the technique. It is related to the fact that the development strategies of passenger motor transportation companies are associated with activity on rendering socially important city passenger transportation. In this regard the strategic and operational management is mainly dependent on the attitude of the city administration and cannot be controlled by the transportation company management.

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