Economic Efficiency Of Optimizing The Market Of Transport Services Based On The Marketing Logistics Principles

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ABSTRACT

This article is devoted to consideration of the methods aimed at improving current marketing of enterprises providing transport and logistics services, as well as creating a new efficient model of the structure and determining of net present value.

Keywords: Transport logistics services, classical, neoclassical and institutional models, transportation technologies, cost-effectiveness, discounted income.

Introduction

Application of marketing at all stages of transport logistics services and implementation of the principles of its efficient management in practice requires introduction of new forms of management. The scope of activities in this area includes organization and operation of marketing structures that are adjusted in compliance with market conditions, as well as performing the tasks of studying demand and rendering services.

The aim and objectives of this research paper are to propose the model of marketing structure that can ensure efficient operation in the transport services market by analyzing comprehensive and popular patterns of structural divisions responsible for marketing activities. This is due to the fact that the entities providing transport logistics services have not developed scientific and methodological approaches and principles for the organization of marketing at the adequate level. Therefore, below we propose the marketing organizational and functional structure of the enterprise providing transport logistics services.

Material and Methods

Improving operating marketing of enterprises providing transport and logistics services, first of all, requires enhancing the skills of employees and rational organization of a new model of the structure.

Having investigated the essence of the classical, neoclassical and institutional models that can be used in practice, it should be noted that the system model is the most optimal model in the organization of marketing of the enterprise providing transport logistics services [1].

The structural model implies the structure as a system of interconnected parts and variables, and recognizes that it is part of a relatively large system as a structure [2].

The quality of road transport services in the conditions of severe competition means that the company can meet the volume of

transport services at the level of market demand under the impact of external environment and internal factors, and as a result achieve an adequate economic efficiency. The volume of traffic directly depends on the technical and operational performance of the car company.

Amendments in these indicators are directly related to the internal factors of the enterprise, mainly production organization, personnel and management system, logistics, service, fleet structure, entrepreneurial ability, transportation technology, arranging customer interaction and settlements.

Results

In reliance upon the benchmarking method, we select a group of technical and operational indicators that directly depend on the volume of traffic to make our calculations simple and clear.

It is known that the capacity for bus fleets is:

$$\boldsymbol{Q} = \frac{\mathrm{T}_{\boldsymbol{v}} \cdot \boldsymbol{S_o} \cdot \boldsymbol{\beta} \cdot \boldsymbol{q} \cdot \boldsymbol{\gamma}_{\mathrm{c}} \cdot \mathrm{A_c} \cdot \boldsymbol{\alpha_r} \cdot \boldsymbol{D_c}}{\boldsymbol{l_p}} \qquad (1)$$

As it is obvious from Formula 1, the technical and operational indicators that are functionally related to the carrying capacity are as follows:

$\boldsymbol{Q}$ – annual traffic volume, tn, passenger; $\boldsymbol{T_v}$– average daily working time of motor vehicles, hours; $\boldsymbol{S_o}$ – average operating speed, km/h; $\boldsymbol{\beta}$– average distance utilization factor; $\boldsymbol{q}$ – average passenger capacity of cars, passenger; $\boldsymbol{\gamma_c}$ – average passenger capacity utilization factor; $\boldsymbol{A_c}$ – average number of registered cars; α_{r} – average park utilization rate; $\boldsymbol{D_c}$ – number of calendar days; $\boldsymbol{l_p}$ average distance of one passenger, km; [3].

Achieving an increase in traffic volume by improving technical and operational performance of the car company does not always depend on the size of the bus fleet. Moreover, in order to simplify the issue $\boldsymbol{A_c}$ and $\boldsymbol{D_c}$ are not taken into account in further calculations, as the calendar days are the same for everyone.

In our example, we compile a group of internal factors, i.e. technical and operational indicators, which are directly related to the transport enterprises evidenced from bus fleets, which operating conditions are close to each other ($\boldsymbol{Tv}$, $\boldsymbol{S_o}$,$\boldsymbol{\beta}$,$\boldsymbol{\gamma_c}$,$\boldsymbol{\alpha_в}$) (Table 1).

We will identify the best of these group indicators. The greater the rate of expression in equation 1, the smaller the denominator, the more favourable situation is.

Table 1

Changes in the main technical and operational performance indicators of bus fleets[1]

№	*Indicator*	*Unit of measure*	*BC-1*	*BC-3*	*BC-5*	*BC-8*	*BC-12*
1.	$\boldsymbol{Q}$	*thousand passengers*	19341,9	36233,9	14530,8	21743,3	30655,7
2.	$\boldsymbol{Ac}$	*pcs*	120,0	200,3	77,0	108,5	179,9
3.	$\boldsymbol{Tv}$	hours	11,5	12,64	**14,21**	11,86	11,5
4.	$\boldsymbol{S_o}$	km/hour	**22,7**	20,4	19,5	21,3	21,1
5.	$\boldsymbol{q}$	passengers	22,2	20,2	**24,36**	23,77	20,45
6.	$\boldsymbol{l_p}$	km	6,25	5,96	6,78	6,02	5,92
7.	$\boldsymbol{\beta}$	-	0,937	0,946	0,901	0,948	**0,967**
8.	$\boldsymbol{\gamma_c}$	-	0,726	0,831	0,793	0,770	**0,828**
9.	$\boldsymbol{\alpha_в}$	-	**0,737**	0,723	0,725	0,803	0,695

It should be noted that in order to make the results even better and more favourable, it is possible to conduct marketing research among passengers, formulate a group of indicators that meet the needs of individual consumers and make appropriate calculations.

According to formula 1 based on Table 1 it is possible to calculate total traffic volume **V** for each bus fleet on the basis of the best indicators related to the activities of the car company.

[1] Developed by the author

According to the results obtained, it is possible to calculate the economic efficiency due to the increase in traffic volume. Here the annual cost-effectiveness is calculated by taking into account the fixed cost savings for each additional passenger carried, and it is expressed by the following formula:

$$\boldsymbol{Is = V * (Sd - Sd'); thousand\ UZS} \quad (2)$$

In assessing the effectiveness of the marketing management system of entities operating in the market of transport services it is possible to use improved and adjusted methods to make some modifications to the models adopted by most theorists to determine commercial efficiency [4].

Discussion

Taking into consideration the fact that efficiency is reimbursed by the return on capital expended, it is appropriate to use the theory of "time value of money". The basis of this method is to reduce the amount of expenditures on marketing activities to the values of the initial period

Adjusting expenses and results relative to the initial period is done by multiplying their current value by the discount coefficient. This coefficient is determined using the following expression[5].

$$\alpha_t = \frac{1}{(1+E)^t}, \quad (4)$$

here: α_t - discount coefficient;
t - number of calculation stage ($t=0,1,2,\ldots, T$);
E - discount standard.

Recalculating the income that a company providing transport logistics services can receive from the expenses of an improved marketing system using the discount coefficient will help to achieve a logical result and recognize net present value (NPV). In cases where the discount rate does not change, the net present value is determined using the following equation:

$$NPV = \sum_{t=0}^{T}(H_t - X_t)\frac{1}{(1+E)^t} = \sum_{t=0}^{T}\frac{C_t}{(1+E)^t} \quad (5)$$

here: H_t - results achieved in stage t of calculations;
X_t - the amount of expenses incurred in stage t of the calculation;
C_t - the effect achieved in stage t;
T - scale of calculations.

It should be noted that the larger the amount of NPV, the higher the efficiency of marketing activities of the entity, which provides transport services. In case NPV < 0, marketing activities are considered ineffective [6].

Definitely, before the launch of measures to improve the marketing activities of the entities, providing transport services, the expected income from core business is given without discounting, because in this case the effectiveness of the scheduled marketing activities will be in the process of initial evaluation. The amount of undiscounted income can be determined as follows:

$$UDI = \sum_{t=0}^{T}(H_t - X_t) \quad (6)$$

In the process of determining the effectiveness of measures aimed at improving the marketing management system, net income will always be greater than net present value.

The increase in cash flows over the years due to measures to improve the marketing management system can be determined by the following expression:

$$CF_t = I_t^T + I_t^{os} + T_t + D_t + L_t \quad (7)$$

here: I_t^T, I_t^{os} - forecast of the additional income received from transportation, carriage and other services by the entity, which provides transport services, due to the implementation of marketing activities in year t;
T_t - write-off cost of fixed

assets used in the marketing activities of the entity, which provides transport services, in year *t,* or their residual value;

D_t - depreciation of fixed assets related to marketing activities;

L_t - the amount of bank loan intended for the development of marketing activities in year *t*.

I_t^T, I_t^{os} income growth is assumed in reliance upon the forecast of an increase in the volume of transportation and other types of services provided by the entity, rendering transport services.

If net present value has the greatest cost, the effectiveness of measures aimed at improving the marketing management system is considered favourable. Comparing indicators on large values in the system enables to precisely identify complex problems and make optimal solutions in due time.

Conclusion

A comprehensive solution to the problem requires an interconnected cross-subject approach to raise efficiency of motor vehicle transport on the basis of decisions that enable to perform its functions, while ensuring high levels of commercial efficiency, reliability and safety. The quality of motor vehicle transport services under conditions of severe competition means that the company can meet the volume of transport logistics services at the level of market demand under the impact of external environment and internal factors, and as a result achieve economic efficiency. The volume of traffic directly depends on the technical and operational performance of the car company.

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Changes in these indicators are directly related to the internal factors of the company, in particular, production organization, personnel and management system, logistics, rendering service, fleet structure, entrepreneurial ability, transportation technology, as well as arranging customer interaction and settlements.

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