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EVALUATION SYSTEM OF NATIONAL TRANSPORT SERVICING CENTRE OF CONTAINER TRANSPORTATION

This article determines the evaluation system of the transport service center which provides container transportation through the territory of Ukraine and abroad. The indicator system consists of four main groups: general effectiveness, efficiency of customer service, efficiency of internal processes and efficiency of the workforce.

Keywords: container shipping, indicators, efficiency, customers, service.

Statement of the problem. *Implementing the principle of an integrated approach to determine the effectiveness of any system should focus on indicators. After all, there is to date none universal indicators that are able to fully characterize some of the objects. Therefore, it is very necessary to study parameters that would characterize fully the main results of a comprehensive service transportation company.*

The indicator system is a reliable tool of the knowledge base required for effective enterprise, enhance market relations, competent economic management, identification and mobilization of internal reserves increase profitability and product quality and achieve, ultimately, their competitive edge [1, 2, 3 5, 7].

It is known that all economic processes in any industry, which is concerned with the provision of services can not be described by any universal indicator. Therefore, the transportation activities should be carefully studied and analyzed by using an integrated approach, implemented accounting, analytical, statistical, technical, economic, regulatory, indicative (recommended) directive (approved by higher authority) project, planned, approved or treaty, both qualitative and quantitative [4].

Analysis of recent research and publications. *As a result of global research professors at the Harvard School of Economics D. Norton and Robert Kaplan, Russian scientists Hraboyedov VV and V.H. Karchyk suggest using the balanced scorecard as a system for measuring indicators of the organization, which included both traditional "ones defined "formal financial and economic indicators, as well as informal" are not defined "[4].*

Purpose of the article. *The current system of indicators of the company must be supplemented by informal indicators to provide a qualitative assessment of indicators.*

The main material. *Statement of main results obtained with full justification of scientific results. According to the proposed technique all indicators are divided into four groups, defining the processes of business:*

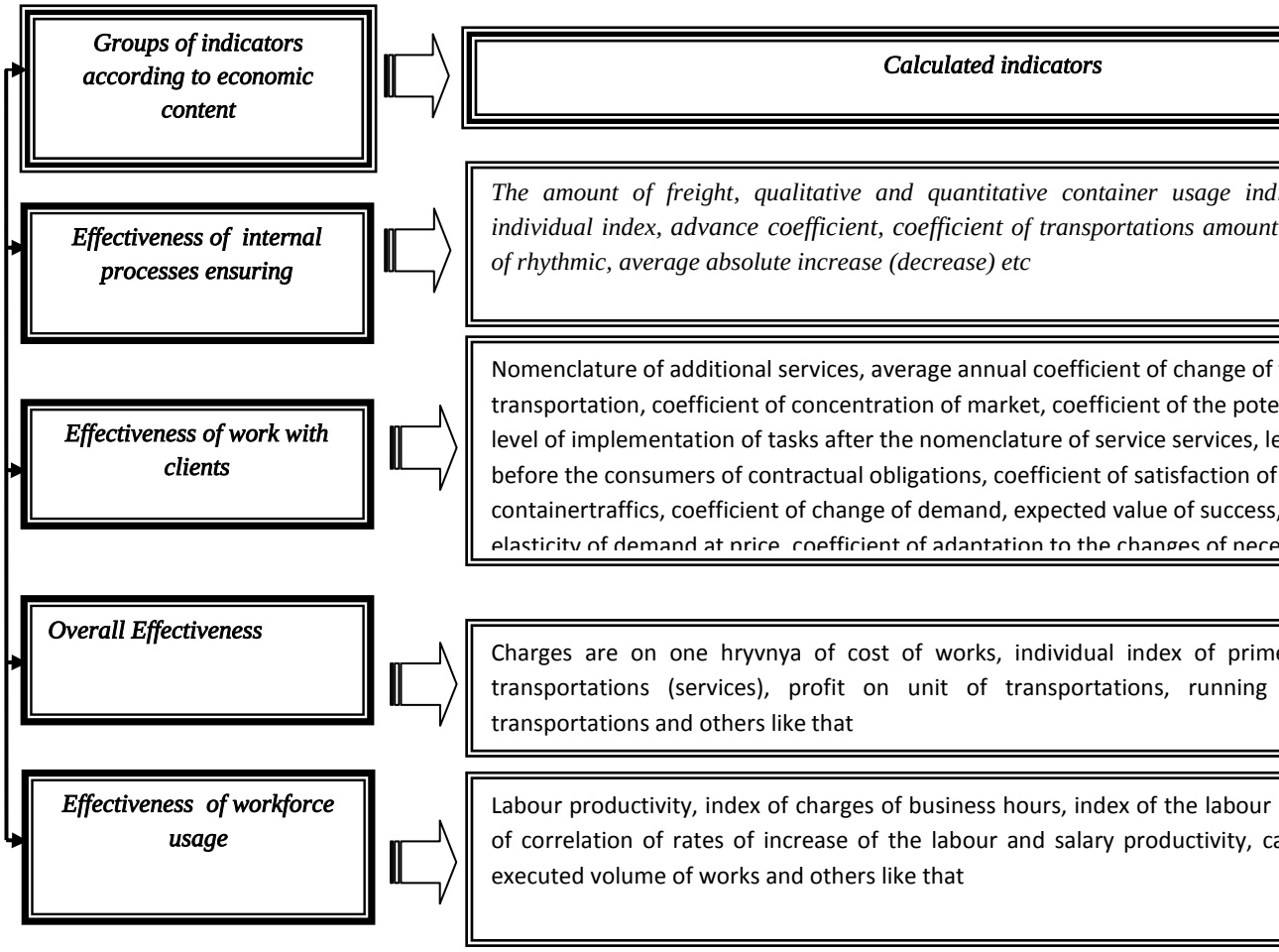

Figure. 1. The system of transport service centers indicators of railway container transport

• *"overall efficiency" - characterizing the economic and financial indicators that reflects the main results of the development;*

• *"the efficiency of the customer" or external processes that determines the interaction with the environment, affect the incentives of customers;*

• *"the efficiency of internal processes", i.e. internal results of companies that provide competitive activity;*

• *"the efficiency of labor" related to staff qualifications, productivity, employment and work motivation (Fig. 1) [4].*

Consider each group of indicators and focus only on the specific.

"The efficiency of internal processes" are defined quantitative and qualitative indicators of transportation of the company.

Turn the container - a container of their turnaround from the time of its loading (unloading) until the next loading (unloading):

$$O_к = \frac{\Sigma n_{роб} \cdot 365}{U}$$ *, H (day), (1)*

where $\Sigma n_{роб}$ *- working park ofcontainers;*

U *- work done by railways per day (the amount received from other railroads loaded containers and number of containers loaded on rail).*

Productivity of container:

$$F_к = \frac{\sum P_{рік}}{\sum n_{роб} \cdot 365}$$ *, (2)*

where $\sum P_{рік}$ *- volume of transported goods by working containers per year, etc.*

Here are the parameters characterizing the internal indicators of the transport service.

The absolute increase (decrease) in transportation volumes:

$$\Delta K = K_{зв} - K_{баз}$$ *(3)*

where - $K_{зв}$ *the amount of transportations during the reporting period, contingent containers;*

$K_{баз}$ *- The amount of transportations in the base period, conventional containers.*

If condition, the amount of new business in excess of cargo containers in the base under transportations volumes increase. The absolute increase (decrease) in transportations volumes are encouraged to use the indicators analysis of transportations operations for the reporting year.

Advance coefficient (lag) of container shipping:

$$к_{розв}^{конт} = \frac{к_{конт}}{к_{ван}}$$ *(4)*

where $к_{конт}$ *- coefficient of changes in transportations amount of goods;*

$к_{ван}$ *- change the amount of freight by rail.*

Advance ratio (gap) determines the development of container transportations in comparison with freight.

If condition, $\kappa_{розв}^{конт} = 1$ *is true, the development of container and general cargo is equally, if* $\kappa_{розв}^{конт} > 1$*, then more rapidly growing container transportations, compared with cargo.*

Coefficient of rhythm indicators of container shipping:

$$\kappa_p^i = \frac{K_{зв}^i}{K_{серзв}^i} \quad (5)$$

where $K_{зв}^i$ *- the amount of transportations in the i-th month of the reporting period, contingent containers;*

$K_{серзв}^i$ *- average transportations volume during the reporting period, contingent containers.*

Coefficient characterizes the rhythm ahead (lag) of transportations loads for a given month compared to the average.

"Effective use of manpower" determined by the following indicators of the labor relations of employees now (see Fig. 1).

"The effectiveness of the customer" or external processes are characterized by parameters that determine the result of interaction with the environment and affect the incentives clientele. This group of indicators suggest characterized by the parameters listed below.

The average rate of change of the volume of cargo transportation container worth:

$$\kappa_{конт}^{сер} = \frac{\sum_{i=1}^{n-1}\left(\frac{\sum P_i}{\sum P_{i+1}}\right)}{n-1} \quad (6)$$

where P_i *- the amount of cargo in containers and in the year of the analyzed period, t;*

n *- Number of years in the analyzed period.*

The average rate of change of the volume of cargo transportation containerized characterizes increase (decrease) of container transportations in the analyzed period compared with baseline.

The execution of tasks on the range of services:

$$У_н = \frac{\sum_{i=1}^{к} Д_{зв}^i}{\sum_{i=1}^{к} Д_{план}^i}, \quad (7)$$

where $\sum Д_{зв}^i$, $\sum Д_{план}^i$ *- the amount of revenue and the second of services in accordance with the reporting and planning period, UAH.*

$к$ *- The number of services.*

The execution of tasks on the range of services determines how the company performs routine tasks in service.

The level of indicators of contractual obligations to consumers:

$$У_д = \frac{З_д}{З} \quad (8)$$

where $З_д$ *- the number of clients who were given transportation and related services for preliminary applications in the analyzed period;*

$З$ *- Total number of clients who have to provide services for preliminary applications for the planning period.*

The level of indicators of contractual obligations to consumers shows how the company fulfills its obligations, whereby analyzes for failure as liabilities of the enterprise and customers.

Coefficient needs in container transportations:

$$к_{зад} = \frac{\sum_{i=1}^{к} P_{зв}}{\sum_{i=1}^{к} P_{заяв}} \quad (9)$$

where $P_{зв}$, $P_{заяв}$ *- the volume of container transportations in accordance with the reporting period and in previous applications customers, etc.*

Coefficient needs in container transportations determines the degree of customer satisfaction in this type of transportations.

Change in demand:

$$\Delta к_{ПП} = \frac{К_к - К_п}{(К_п + К_к) : 2} \quad (10)$$

where $К_п$, $К_к$ *- the demand for container transportations at the beginning and end of the analyzed period, conventional containers.*

Change in demand determines the level of increase (decrease) in demand to perform container operations when compared to the demand at the beginning and end of the analyzed period. If condition $\Delta к_{ПП} > 0$ *, the demand at period end compared to the beginning of the period demand increases.*

Expectation of success of the company:

$$М = Д_{поз} \cdot Й_{поз} + Д_{нег} \cdot Й_{нег} \quad (11)$$

where $Д_{поз}$, $Д_{нег}$ *- in accordance with the expected value of positive and negative results (profit of enterprise);*

$Й_{поз}$, $Й_{нег}$ *- respectively, the probability of positive and negative results of the company.*

Expectation of success of the company describes the result of the Company taking into account the probability of loss.

Level of service work reflects the level of each of the separate service (ancillary) activities in the enterprise:

$$У_{сервіс} = \frac{R_i}{R_{заг}} \quad (12)$$

where R_i *- the amount of the corresponding i-th type of services (repair of containers, information, etc.) UAH.*

$R_{заг}$ *- The total volume of the enterprise services, USD.*

Price elasticity of demand:

$$ПЦ_e = \left| \frac{(К_к - К_п) \cdot 100}{(К_п - К_к) : 2} : \frac{(Ц_к - Ц_п) \cdot 100}{(Ц_к + Ц_п) : 2} \right| \quad (13)$$

where $К_п$, $К_к$ *- the demand for container transportations at the beginning and end of the analyzed period, UAH.*

$Ц_п$, $Ц_к$ *- Fees for services at the service of container transportations at the beginning and end of the analyzed period, hr.*

Price elasticity of demand determines the percentage change in demand with respect to changes in interest rates for the services of the enterprise. In condition $ПЦ_e > 1$ *demand is elastic, ie the percentage change of the required transport will be greater than the percentage change tariffs. Demand is inelastic if the elasticity coefficient, ie when interest rates change more than the percentage increase in demand.*

Where the situation is called unitary elasticity. If the change does not require changes in demand tariffs achieved absolute elasticity of demand. On the other hand, can be an absolute inelasticity - when changing tariffs will not affect the change of demand, ie when the quantity demanded remains constant for any change in rates.

Rate change adaptation needs cargo:

$$к_{адапт} = \frac{\Sigma Д_{реаг}}{\Sigma В_{реаг}} \quad (14)$$

where $\Sigma Д_{реаг}$ *- additional revenue center, obtained by efficiently respond to changing consumer needs, UAH.*

$\Sigma В_{реаг}$ *- The cost center due to the response to changes in consumer needs, hr.*

If condition $к_{адапт} \geq 1$ *is true, then provides an effective response to the changing needs of consumers.*

Coefficient of harmonization of interests and customer service:

$$к_{гармон} = \frac{\sum_{i=1}^{m} Д_i^{ф}}{\sum_{i=1}^{к} P_i^{пл}} \quad (15)$$

where $Д_i^{ф}$ *- the income received by the service center of the i-th customer UAH.*

$P_i^{пл}$ *- the amount of money that the i-th customer is willing to spend on maintenance services;*

m *- the number of customers.*

If $к_{гармон} \to 1$, *as it provides the level of harmonization of interests and customer service.*

"Overall indicators" describing the outcomes of the transport company.

The cost of one hryvnia cost of work:

$$B_p = \frac{\sum B_{звіт}}{\sum Д_{звіт}} \quad (16)$$

where $B_{звіт}$ *- the cost of completed container transportations and the provision of related services during the reporting period, UAH.*

$Д_{звіт}$ *- The amount of revenue from container shipments made during the reporting period, hr.*

The smaller the value of the cost of one hryvnia value of work, the company will receive greater economic benefits from its activities.

Individual transport cost index products:

$$I_{соб} = \frac{C_{звіт}}{C_{баз}} \quad (17)$$

where, $C_{звіт}$, $C_{баз}$ *- unit cost under the baseline and reporting periods, hr.*

Individual index cost transport of products by comparing several periods should have a downward trend, which has a positive impact on the economic indicators of the enterprise.

Return shipping container:

$$E_к = \frac{\sum П_{зв}^{чис}}{\sum B_{зв}} \cdot 100 \quad (18)$$

where $\sum П_{зв}^{чис}$ *- the sum of net income for the period, UAH.*

$\sum B_{зв}$ *- The cost of implementing container transport for the period, hr.*

Return shipping container when comparing several periods has increased.

Earnings per unit of transportation:

$$Д_1 = \frac{\sum Д_{зв}}{\sum K_{зв}} \quad (19)$$

where $\sum Д_{зв}$ *- the amount of income from the indicators container shipping, UAH.*

$\sum K_{зв}$ *– The volume of container transportations, conventional containers.*

Earnings per unit of transportations should grow that characterize yield of container transportations.

Conclusions. *Thus, given a broader system is able to evaluate the indicators of service, which in turn, will provide in-depth analysis of transportations of the transport company.*

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