

ASSESSMENT OF THE EFFICIENCY OF FUNCTIONING AND DEVELOPMENT OF TRANSPORT INFRASTRUCTURE

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In the context of progressive socio – economic development of the country, a scientifically based measurement of the effectiveness of various types of human activity is of great importance. Efficiency is the ratio of the result of human activity to the goal, and an objective measurement of this important parameter requires a scientific approach to substantiating the result and goal of this system. Transport is a complex socio-economic structure, which has its own basic features in comparison with the industries that produce products. These features leave their mark on the measurement of efficiency. Failure to take into account the specifics of transport, its products and sales markets significantly distorts the result and thereby reduces the importance of the role of transport in the development of socio – economic life of the country.

The starting point of efficiency assessment is a common property of all production and economic systems, which consists in the fact that in each of them there is a process of transformation, processing (P) of production resources (Z) into a manufactured result (R). However, this transformation must be carried out in such a way that it meets a reasonable efficiency criterion, namely:

$$E_f = R/Z \geq E_n \quad (1)$$

где E_f where E_f is the level of efficiency of the process of converting production resources into a result;

E_n – a scientifically based performance criterion.

The formula for evaluating performance is simple. Difficulties arise when questions arise from the systemological point of view:

- 1) what efficiency we are talking about.
- 2) taking into account what interests the effectiveness is determined;
- 3) what is meant by the result, costs and their comparability?

When considering the first question, there are two aspects to consider:

- 1) assessment of the efficiency of the functioning of an economic entity, i.e. it is necessary to assess the efficiency of advanced production resources;
- 2) assessment of the creation of new or reconstruction of existing facilities, i.e. it is necessary to determine the effectiveness of investment or innovation.

The second issue involves taking into account the interests of the country as a whole, the territorial region, the owner of investments, the industry or a separate economic entity. The third question clarifies the completeness of accounting for the indicators used and their comparability. Taking into account these systemic issues, various methods of measuring efficiency, types of efficiency, and other parameters (criteria, indicators) are proposed.

In order to solve specific problems, all STRs and parameters must be aligned systemologically. As you know, any performance indicator must meet the requirements of computability, visibility, objectivity, and criticality. It is recommended to distinguish between the concepts of "criterion" and "indicator". The criterion defines the principal approach to measuring efficiency and reflects the main integral feature used to evaluate efficiency. For example, before the transition of the economy to market relations, the criterion of national economic efficiency, which could be obtained as a result of the implementation of capital investments when creating an object, was used as a basis.

With the transition of the economy to market-based management principles, profit or net discounted income (NPV) is used as a criterion of efficiency, with various modifications: the index of profitability (ID), the internal rate of return (GNI), and the payback period for investments (OKROI).

Decomposition of transport goals allows us to distinguish three independent areas of efficiency:

- 1) efficiency of functioning of the transport complex;
- 2) efficiency of long-term investments: capital investments, investments, innovations;
- 3) efficiency of updating fixed assets (funds) of transport.

Evaluating the efficiency of transport operations is a complex problem. The difficulties of quantification are caused not only by the scale and systemic complexity of transport, but also by its special position in the sphere of material production as an infrastructure sector. Any system is created to achieve a specific goal, and the goal of the system is always exogenous, i.e. it is set only outside the system (metasystem). In this regard, the purpose of spacecraft transport can be determined only by its impact on the functioning of the metasystem – the country's economy as a whole. If we proceed from the preferences of only one function – the economy, then this goal can be formulated as reducing transport costs, providing highly competitive transport services in other sectors of the economy.

But transport performs other important functions in the society besides the economic one. Therefore, the formulated transport goal is difficult to formalize and cannot be correctly expressed numerically. To measure efficiency, it is necessary to detail the result, dividing it into a number of internal goals that must be achieved simultaneously, since transport is a multi-purpose system. Therefore, it is advisable to detail the indicators and bring them to a systemological form.

Methods for evaluating economic efficiency were further developed in the works of widely known scientists and economists, such as L. V. Kantorovich, V. V. Novozhilov, D. S. Lvov, N. P. Fedorenko, T. S. Khachaturov, A. E. Gibshman and others [1, 2, 3]. By the end of the 80s of the last century, the methods and necessary parameters for determining economic efficiency were justified. But these guidelines were designed for a planned and centralized economy.

With the transition to market relations and the release of official methodological recommendations [4,5], the methodology for evaluating the effectiveness of capital investments, investments, and innovations has fundamentally changed. Methodological recommendations are developed on the basis of methodological provisions of two international organizations [4]: The World Bank and the United Nations Industrial Development Organization for Emerging Market Economies (UNIDO). This methodology was created primarily to help measure the effectiveness of developing countries (in market conditions) countries. Therefore, it is characterized by detailing and algorithmizing all calculations, criteria for financial and economic efficiency of the project to the detriment of its essential content.

The methodology sets the definition not of efficiency, as provided for by the theory, but of the effect – the difference between the result and costs. The exclusion of costs from the denominator of the efficiency assessment formula has created opportunities for manipulating the value of the economic efficiency of an investment project and its effect. As you know, the value of the effect is added to the prices of products supplied by the enterprise or company.

Therefore, when measuring, it would be necessary to distinguish between results (effect) and efficiency, because the results of an investment project are measured in absolute units (these are products, services, revenues, profits, etc.), and efficiency, unlike results, is measured in relative terms. The next drawback of the official methodology is that discounting of results and costs is elevated to the rank of law, although the discount rate has no connection with any financial indicator of the company for which the investment project is being implemented. Other shortcomings of the official methodology are noted below.

In accordance with the official Methodological Recommendations [4], the economic efficiency of an investment project should be evaluated from the following points of view:

- 1) national economy (economic efficiency);
- 2) the owner of the investment (commercial efficiency);
- 3) the theory of the territorial structure (budget efficiency).

It should be emphasized that the criteria for evaluating an investment project for three types of efficiency are different, namely:

- 1) the assessment of economic efficiency should show what benefits and costs the investment project carries in general for the country, for society, for its welfare;
- 2) evaluation of the investment project's effectiveness from the perspective of the investment owner (project participant) should show how soon and in what amount the investor should receive income exceeding the advanced capital;
- 3) evaluation of the investment project from the point of view of budgetary interests should show how the expected implementation of the investment project will affect the relevant budget (federal, regional or local).

These estimates use different inputs: principles, valuation norms, prices, and other parameters. The official Methodological Recommendations and their appendices do not focus on some of the fundamental provisions. Considering the above Methodological Recommendations, it should be noted that at first, in evaluating an investment project, the authors preferred the position of the owner of the investment (this process continues to this day), forgetting that there are other, more important interests (of the country, society as a whole).

The first attempt to systematize the welfare theory in evaluating investment projects was made in the United States, in the so-called "Green Book" [4], where four criteria for evaluating resources were proposed:

- 1) national economic efficiency;
- 2) economic development of the regions;
- 3) environmental quality;
- 4) human well-being.

The implementation of investment projects in the United States, selected according to this comprehensive assessment, has led to positive results in four areas of development. The improvement of the environment in the area of river basins was particularly noted.

Over the past decades, the representation of socially significant investment projects in economic development plans in developing countries and the need for international credit institutions to systematize the economic efficiency of projects have aroused a wide interest in project analysis. As a result of the efforts of scientists and institutions such as the World Bank, the Inter-American Development Bank, and the Asian Development Bank, a methodology for project analysis has emerged that is closely related to the methodology of benefit – output analysis [6].

At the current stage of the country's development, with a variety of methodological approaches, it is very important to have basic methods for evaluating investment projects. They are used to develop industry-specific, regional, and other methods for evaluating the effectiveness of projects, which reflect the specifics of determining efficiency in a given farm, as well as regulatory and other information. The primary point in such reasoning is that private methods do not contradict the fundamental provisions of official recommendations. It should be noted that some methods contain a number of measurement violations that distort the objective assessment of the investment project. So, for example, in this methodological development [7] it is argued that the most perfect way to evaluate an investment project in modern conditions is to determine the payback period for spent investments, although it is known that this indicator does not take into account the time value of money: it is relatively insensitive to the economic life of the investment project, and has other disadvantages. Other methodological recommendations [5] use effect indicators instead of the efficiency criterion, which, of course, significantly distorts the assessment of the investment project.

According to the Guidelines, the investment project is evaluated in two stages. It should be noted that the effectiveness assessment should also be carried out in three stages, which is also recommended in the project analysis. The first step should be an expert assessment of the significance of the investment project. To do this, it is necessary to establish the purpose of the investment project and the resources for its implementation. In this case, investment projects are divided into socially significant and local ones. For socially significant investment projects, first of all, economic efficiency is determined. For local investment projects, commercial and, under certain conditions, budgetary efficiency is evaluated.

Official Guidelines provide not only a step-by-step assessment of the project's effectiveness, but also separate stages of its implementation:

- 1) development of an investment proposal and a declaration of intent (express –evaluation of the investment proposal);
- 2) justification of investments;
- 3) техникоfeasibility study of the project (feasibility study);
- 4) осуществление project implementation (economic monitoring).

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