

On the question of economic efficiency and how to assess it

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Abstract. Over the years, since the world moved to a system of market-based economic relations scientists and businessmen worldwide wonder how to ease and modernize the process of analyzing business performance. During this time, a variety of methods and tools have been developed to deal with this problem. After all, the productivity of the company is directly related to its competitive qualities, so the managers are interested in the quality of evaluation of their companies. The article deals with the traditional methods of evaluating the performance of enterprises and some of the tools used in order to improve its quality.

The economic efficiency is complex category of economics. The evidence of its presence in all spheres of life and all stages of economic production are incontestable. It is the basis of quantitative criteria for constructing value of decisions. In general, the representation of the efficiency characterizes the development of systems, processes and events. Efficiency advocates both as an indicator of the development of the enterprise and the most important stimulus of its growth and development. Enterprises realize their mutual interests and operating in a competitive environment, occupying a certain segment of the market. The increase in market share, the increase of competitive advantage cause stability of strategic positions of organization, that is characterized by the ability to function effectively in the long term.

Efficiency broadly describes the qualitative aspect of development of enterprise by showing what combination of public resources helped to receive final result. Quantitatively, the efficiency is expressed by the ratio between the results obtained in the production process, and the costs of social labor, associated with the achievement of these results. Therefore, the meaning of increasing of efficiency production is a more rapid growth of the result (effect) as compared to the cost.

An analysis of the overall effectiveness of economic activity is the prerogative of senior management structures of the organization.

Analysis of the effectiveness of the company needs not only its head to assess the financial situation, but also a number of people who are directly involved in economic practice:

- Investors, who make decisions about formation of a portfolio of securities companies;
- Creditors, who if necessary, should give loans to businesses;
- Auditors, who check the statements and the economic activity of enterprises;
- Heads of marketing and advertising departments, who based on this information, create strategy of moving goods to markets.



Modern economy, with its ever-increasing competition, requires continuous improvement of the efficiency of the economic potential from managers of enterprises, firms and associations. The best forms of management are also important in order to achieve the best results at the lowest cost of labor and resources. The need to improve the theory and practice of the analysis of the economic efficiency of enterprises further determines the relevance of the article. As a characteristic of the quality of its operations and, consequently, its viability (in the market environment is manifested through competitiveness), efficiency is not only the most important area of theoretical and empirical research in economics and management, but also the object of close attention as for the management of the organizations as well for other interested parties.

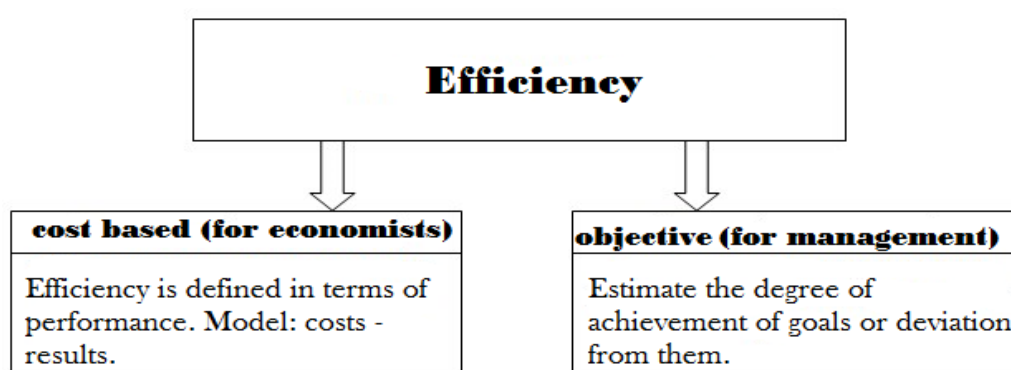


Figure 1. Types of efficiency

Currently, the most complete and consistent economic research of efficiency of economic activities is given in the theory of complex economic analysis where large areas are dedicated to long-term effectiveness, operational and current analysis, which is estimated to reveal changes, unrealized potential and increase effectiveness of economical activities of the enterprise on the basis of changes in efficiency of economic activities.

An analysis of the overall effectiveness of economic activity is the prerogative of the senior management and linked to the definition of product price, lot size of purchases of raw materials and supplies products, equipment replacement or technologies. Other solutions must also be assessed in terms of overall success of company, the nature of its economic growth and efficiency. Main objectives of efficiency analysis are the following: assessment of the economic situation; detection factors and causes of the state of progress; preparation and justification to management decisions; identification and mobilization of reserves.

In conditions of market relations in the economy, business analysis is designed to provide high profitability and competitiveness of organizations both in the short and in the long term.

Under the new economic circumstances, deeper understanding the content of the concept of efficiency is necessary. The level of efficiency of production does not reflect only the ratio of benefits and costs, but also the extent to which economic potential is used. The overall aim of producers, of course, is income. Therefore, as a local criteria of efficiency is considered to be the ratio of profit to the cost of production, that is the traditional indicator of profitability. However, from the standpoint of system-wide objectives, role assignment is producing the set (the range) of products of a certain quality and amount and in a predetermined time interval.

Therefore, from a system perspective, the effectiveness of any producers (enterprise, organization) should be measured by its contribution to the system benefits.

The method of economic analysis includes a whole system of methods and techniques, which allows to scientifically study economic phenomena and processes that make up the economic activities of the organization. At the same time any of the methods and techniques used in the economic analysis can be called "method" in the narrow sense of the word as a synonym for "the way to do". Analysis of economic activity also uses the methods and techniques that are typical for other sciences, especially mathematics and statistics.

The method of analysis is a set of methods and techniques, needed to ensure systematic and comprehensive study of the impact of individual factors on the change in the economic performance and ways to improve the activities of organizations. There are lots of different practices, used in the analysis of economic activities. These include the traditional methods, which are widely used in other disciplines for the processing and review of information (comparison, graphic, balance, average and relative numbers, analytical groups).

Comparison is the most common method, which allows the manager or evaluator to see the dynamics of enterprise development and make appropriate conclusions. Even if other methods of assessment were taken as a basis, the final stage always uses comparisons. The results are compared with the results of any other periods, or with the results of other similar companies operating in the market. Also, the results can be compared with the general trends in the business environment.

Analysis of socio-economic processes and the factors, which can influence them, often requires the investigator to comprise and rank these processes and factors. One of the main problems encountered with this type of analysis is that the criteria by which it is held, are often heterogeneous. This may be, for example, both financial and non-financial performance and the results of sociological research, and expert assessment.

In economic and management studies an object of evaluation is usually assumed to be the separate processes (often industrial), operations (such as promotions), projects (such as innovation) implemented by organizations or their structural units (divisions). Thus these objects (organization units) describe a certain set of characteristics that are interpreted as parameters or variables of its activities.

With the operationalization of the concept of efficiency of the organization, it is important to distinguish between performance (effectiveness) and efficiency of its activities. The first one is the measure of the degree of achievement of the objectives set for the organization. The second, by comparing the obtained results with the analyzed unit values of factors (usually resource costs) under which they were achieved, gives an idea of how efficiently it operates. The most common understanding of the effectiveness includes both performance and efficiency (productivity) of the organization. It corresponds to the notion of efficiency when it comes to the correlation of the result to ensure its cost to the organization.

Measurement of the effectiveness of the organization through the analysis of the productivity of its operations for the respective technological display "Input - Output", leading to the presence in the resulting, estimates a number of universal properties, which are not associated with any particular type of organization, or with the specific activities in relation to which valuation. Such properties include:

- a) the system (synthesis) nature or integrity of this estimation;
- b) qualitative and quantitative certainty of a numerical or ordinal scale;
- c) the specific content, which is specified in accordance to the nature of the activity in considered organizational unit.

Nowadays, a variety of tools exists and still develops in order to help in the evaluation of the company. In a relatively short period of time Data Envelopment Analysis (DEA) has grown into a powerful quantitative, analytical tool for measuring and evaluating performance of organization. It is a methodology of comparative analysis of complex technical, economic and social systems.

DEA it is a method based on linear programming, needed to determine the relative effectiveness of different means implemented enterprise products. Data Envelopment Analysis is a relatively new “data oriented” approach for evaluating the performance of companies in various aspects. Linear programming is the underlying methodology that makes DBA particularly powerful, comparing with alternative productivity management tools. DBA has been widely studied, used and analyzed by academics that understand linear programming. [Springer]

That may be economy or management of organization or some other aspects. DEA also can be used to make adjustments and additions to the assessment carried out earlier by other methods and means. Data Envelopment Analysis has been recognized as a valuable analytical research instrument and a practical decision support tool.

In fact, the DEA method is a tool for benchmarking, the use of which not only allows you to set the most effective organizational units and select one of them according to the standards of inefficient facilities, while identifying how far the latter are located from the first.

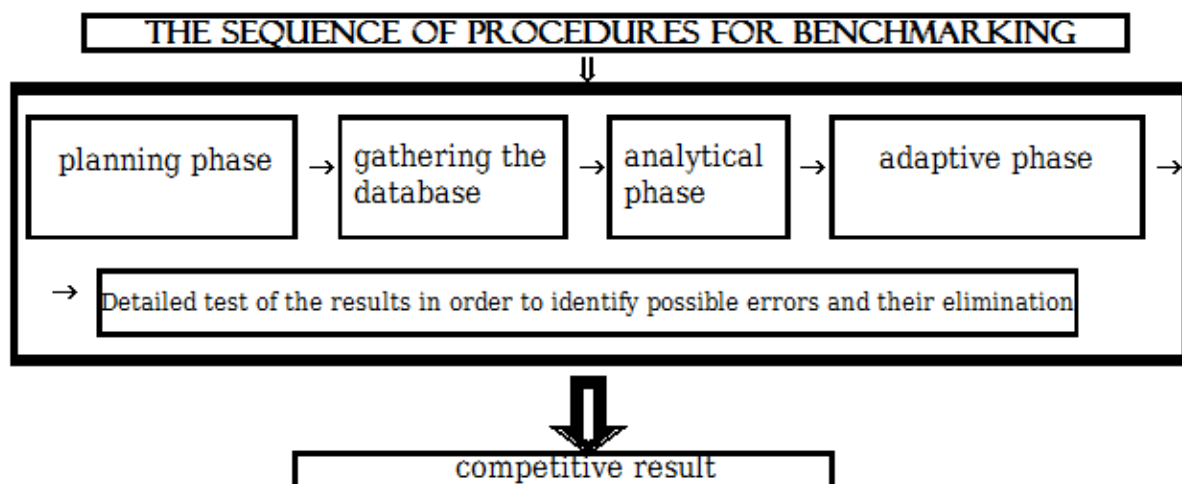


Figure 2. Benchmarking scheme

As shown in the scheme, benchmarking aims to improve the competitive qualities of companies, in a same way that pursues the head of the organization conducting the analysis of its effectiveness.

A key aspect of DEA is incorporating environmental factors into the model as either inputs or outputs. Resources available to units are classified as inputs whilst activity levels or performance measures are represented by outputs.

According to the formula, the efficiency is given by:

$$\text{Efficiency} = \text{output/input}$$

Thus, we get the ratio by which we can judge the effectiveness of a working unit. If each working unit achieved the highest profits in relation to the costs, the absolute or optimum efficiency will be reached. This means that it is impossible to achieve the best performance results without introduction of new technology or other variations in the manufacturing process.

Another tool of practical interest to assist the analysis of the effectiveness of the enterprise is the method TOPSIS (Technique for Order Preference by Similarity to Ideal Solution). TOPSIS is based on the principle, that the object, which showed the best results, is being as close as possible to the best object and as far from the worst of the objects. The best / worst object - it is hypothetical object for which the value of all the analyzed indicators are the best / worst. Thus, TOPSIS allows to determine the position of the objects on the best and worst scale, as well as relatively to each other. TOPSIS assumes that we have “m” alternatives (options) and “n” attributes/criteria and we have the score of each option with respect to each criterion. TOPSIS method is an effective tool to assist decision-makers and experts in formulation of their goals and subjective preferences, structuring of the set criteria, evaluation of the alternatives in the decision-making process in the language of fuzzy mathematics, linguistic variables, fuzzy sets and fuzzy numbers.

Speaking on the analysis of the effectiveness of the enterprise, the decision-makers should always keep in mind that no matter how many good tools exist to help you to carry it out, the final decision will still always be taken by manager. Whatever method he decided to take, or tool he decided to choose to help, the result of the analysis will depend not on the helping practices, but on the man himself. And the degree of professionalism will be a key factor in a process of summing up the results of the analysis and its interpretation for further development of enterprise development strategies.

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