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ECO-EFFICIENCY AS A PROBLEM IN MANAGING CONTEMPORARY ENTERPRISES

6.1 INTRODUCTION

Both in the academic and public discourse, the need for compatibility of economic progress with the paradigm of sustainable development is increasingly more often stressed, since only economic, social and environmental balance support the development of innovativeness in the entire environment of economic activity. The concept of sustainable development imposes upon enterprises the requirements of economic development based on rational use of the resources of the environment. This type of development forces the determination of appropriate instrument of the evaluation of the realization of these assumptions at the micro-economic level. The analysis of the eco-efficiency of the operation of an enterprise determined by the functioning of the system of its management is one of the methods of evaluating pro-ecological development of companies.

Contemporary enterprises gain competitive advantage, minimize costs connected with their business activity, intensify the efficiency of their impact on the environment and introduce pro-ecological management, and thus thanks to the implementation of eco-efficient solutions fulfill the expectations of their customers.

6.2 FROM EFFICIENCY TO ECO-EFFICIENCY IN THE PROCESS OF COMPANY MANAGEMENT

At the beginning of the analysis of the above problem, there is a need to specify what management is. There are numerous explanations of the concept of management in background literature, as there is no one, generally accepted definition. Management as a branch of science is interdisciplinary in character and that is there are numerous approaches to the analysis [18]. According to Polish economists: A. Koźmiński and D. Jemielniak „management consists in assuring (conscious development) of conditions guaranteeing that the organization operates in accordance with its assumptions, realizes its mission, achieve assumed goals and maintains a relevant level of cohesion enabling weathering, that is distinction in the environment and development, or realization of the mission and goals in the future" [7]. F.E. Kasta and J. E. Rosenzweig assume a wider approach to the concept of management: „management is a process of coordinating collective efforts for the purpose of achieving organizational goals by people, with the use of technology, in organized structures and on the basis of set tasks" [5]. One of the simplest

and widely known definitions of management is suggested by R. W. Griffin, who claims that it is „set of actions […] directed at resources of the organization […] and performed with the intention of achieving goals of the organization in an efficient and effective way" [4].

The process of management may occur between enterprises, institutions or offices as well as inside them. This means that it does not take place in vacuum, but in a characteristic world of organization, which is not fully organized. It allows for impulsive actions, directed by emotions or irrational, not only because of the goals of the organization, but also its participants [8]. Thus, management is „some kind of" journey through chaos, „construction of reality out of elements available to the manager: ideas, people, relations among them, formal and legal institutions, material means (machines, facilities, buildings, materials, final products etc.) and, financial means as well rights to manage them" [9].

Company managers face numerous problems which must be solved. Such problems are repeatable and usually apply to analogous decisions made by managers [10] Thus in the process of management several basic stages which alternate and form cycles, can be identified. These stages are referred to by researchers as functions of the management process [18].

The most widespread functions of management are presented by H. Fayolas: planning, organization, motivation and monitoring. The author selected these function in view „of the criterion of the relation between given actions and the entire process of management" [19]. The first stage – planning, formulates goals and tasks of the enterprise and the ways in which they can be achieved. This triggers the process of management. Organization, as the second phase, focuses on the formulation of organizational conditions necessary for achievement of goals and performance of tasks. At this point, among others, there is a need to plan work, allocate authority, provide information and acquire human, material and financial capital.

Motivation is another function of management, which consists in exerting influence on employees in a way which encourages being the best in the performance of their tasks. This requires an appropriate motivational system, facilitating productive work [18]. Monitoring is the last stage of the process of management, and its essence consists in „the comparison of the actual state with the designed pattern and identification of deviations as well as their causes" [19].

Efficiency, which manifests rational economy, is one of the conditions the existence and survival of a company. This means logical and economic procedure based on authentic knowledge [12]. Thus efficiency leads to the accomplishment of the goals of the organization through the process of making optimum choices, with the use of appropriate means and methods and in consideration of the principles of rational management of resources [11]. There are meaning techniques for measuring efficiency, among others by means of economic analysis. One of the basic ways consists in the calculation of the ratio of the effects to expenditure [1].

In a broader sense, the method is understood as „a quotient of usable effect and expenditure borne for its achievement" [20]. Usually income (the takings of the company in a given period) is used as the picture of effects, and expenditure is understood as accounting costs (actual funds connected with conducting business activity e.g. remuneration, amortization). Alternative costs (cost of lost opportunities), not reflected in accounting, also have to be taken into account. They are equivalent to the income, which „could be generated by a given factor of production […], if it had been used in a different, possibly the best way" [23].

The measurement of efficiency allows companies to estimate, which of the undertaken actions bring best effects. Thus each enterprise aims at increasing the efficiency of its activity by means of the rational use of current and obtained outlay. Organizations, by means of their actions focused only on profit, often cause a lot of damage in the environment. This led to the situation, whereby states introduced changes in the law, to which companies have to adapt. Enterprises have to invest more in environment protection, which may bring profits to the environment but loss for the organization.

Yet, company's strategy directed at environment protection does not always result in loss. Some of the benefits include use of recycled materials, which reduces costs and the amount of waste generated by the company. In general opinion, companies must not be focused on production only, but should also be responsible for the condition of the natural environment. Organizations which observe the principles of environment protection, among others by the implementation of ecological technologies, gain the approval the ecologically conscious society [6]. Thus it can be observed, that in the process of company management, efficiency, which in combination with environment protection brings benefits for both sides, is worth attention.

Most probably deterioration of the natural environment results in the disapproval of the society, which leads to the fact that governments and enterprises have to undertake actions preventing degradation of the environment. Attempts to combine efficiency of the company's activity with environment protection probable led to the occurrence of the concept of „eco-efficiency".

For the first time the concept of „eco-efficiency" was used in 1992 by the Business Council for Sustainable Development in the report Changing Course. Eco-efficiency was described as „the efficiency which is achieved by the provision of products and services in competitive prices, which satisfy human needs and increase the level of life quality by constant reduction of the negative impact on the environment, to the level which corresponds at least to the estimated efficiency of our planet" [15]. According to M. Graczyk and L. Kaźmierczak-Piwko, eco-efficiency „obliges enterprises to create more value, with lower outlay of natural resources, materials and energy, and simultaneous reduction of the emission of pollution to the environment." [3]. Thus, in order to make sure that the process of company management is efficient, eco-efficiency, which probably plays increasingly more significant role in enterprises, has to be taken into account. Reduction of negative external effects of production, results in the fact that the company gains the approval of the society and reduces costs of its business activity.

6.3 WIDELY USED INDEXES OF ECONOMIC EFFICIENCY

Some of the widely used indexes of economic efficiency, whose task is to describe, in a specific way the efficiency of investment and facilitate the choice of specific variants, include: SPTB (Simple Pay Back Time), NPV (Net Present Value), NPVR (Net Present Value Ratio), IRR (Internal Rate of Return) and DPBT (Discounted Pay Back Time). SPBT is one of the traditional indexes of economic efficiency. According to Jan Norwisz the term can be defined as time necessary to recover investment borne on for the realization of a given undertaking. It is calculated from the moment of the start-up of investment up to the point, when the sum of benefits Gross obtained in result of the realization of the investment balances the expenditure. In turn NPV (Net Present Value), NPVR (Net Present Value Ratio), IRR (Internal Rate of Return) and DPBT (Discounted Pay Back Time) are dynamic indexes of economic efficiency. They are based on the discount account. NPV (Net Present Value) is a method based on discounted financial flows of the undertaking. It shows benefits resulting from accomplishment of a given investment [13]. DPBT (Discounted Pay Back Time) is a measure of profitability of investment undertaking [14]. IRR (Internal Rate of Return) is based on the interest rate, takes into account investment, risk and changes in the value of currency. It shows the actual rate of profit of the undertaking [2].

Other widely used indexes of economic efficiency include CBA (Cost Benefit Analysis) and LCC (Life Cycle Cost). According to David Sartori CBA (Cost and Benefits Analysis) is a tool used analytically for the purposes of assessment of investment decision for the purpose of establishing its impact on prosperity, and accomplishment of goals of the EU cohesion policy. The aim of the analysis is to facilitate more efficient allocation of resources by specifying the superiority of a given intervention over others from the point of view of social benefits [16]. CBA can be used for instance, for the assessment of a construction of a new motorway. LCC (Life Cycle Costing) is a tool which facilitates the choice of the most profitable option out of numerous competitive alternatives of operation, purchase and maintenance. All costs are discounted. According to Przemysław Kurczewski, LCC is a total cost borne in the product life cycle. In general total costs borne at particular stages can be divided into costs of purchase, costs of possession and costs of liquidation [17].

CONCLUSIONS

Modern enterprises increasingly more often, apart from applying new methods and techniques of environment management, integrate them with other concepts and methods of production management in order to reduce the degrading impact of the company on the environment. Accomplishment of the strategic goals of the company, based on the analysis of actions which are in conformity with the concept of eco-efficiency, is beneficial for enterprises since it contributes to the reduction of use of natural resources, emission of pollution, and at the same time facilitates the achievement of economic benefits. The analysis of eco-efficiency helps to select the variant, which most economical and exerts the smallest impact on the environment.

The paper presents the significance of the concept of eco-efficiency as a problem in managing contemporary enterprises and key indexes – instrument of the analysis determining the achievement of competitive advantage, growth of productivity, improvement of the quality of offered products, constant improvement of production technology and limited impact on the environment.

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Abstract: *The paper presents the issue of eco-efficiency as a problem in managing contemporary enterprises. While discussing the origins of the concept, it specifies its significance in practical operation of companies as well as forms of defining it. The article includes a synthetic review of methods of evaluation of eco-economic development of enterprises by means of the analysis of indexes referring to simple time of investment return, more efficient allocation of resources and the LCC index which helps to select the most profitable option out of other competitive alternatives of operation, purchase and maintenance.*

Key words: *eco-efficiency, ecology, environment protection, company management*

EKO-EFEKTYWNOŚĆ, JAKO PROBLEM W ZARZĄDZANIU WSPÓŁCZESNYM PRZEDSIĘBIORSTWEM

Streszczenie: *Artykuł przedstawia zagadnienie eko-efektywności, jako problem w zarządzaniu współczesnym przedsiębiorstwem. Przedstawiając genezę tego pojęcia określa jego znaczenie w praktyce funkcjonowania firmy oraz sposób jego definiowania. Dokonuje także syntetycznego przeglądu metod pozwalających na ocenę „eko-ekonomicznego" rozwoju przedsiębiorstwa przez analizę wskaźników, które określają prosty czas zwrotu nakładów, umożliwią efektywniejszą alokację zasobów i wskaźnik LCC, który pomaga wybrać najbardziej opłacalną opcję z pośród innych konkurencyjnych alternatyw eksploatacji, zakupu i utrzymania.*

Słowa kluczowe: *eko-efektywność, ekologia, ochrona środowisko, zarządzanie przedsiębiorstwem*

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