



STATIC AND DYNAMIC ANALYSIS OF ORGANIZATIONAL EFFICIENCY

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Abstract: The article discusses the issue of two different approaches to economic efficiency, such as static efficiency and dynamic efficiency. They represent different concepts of organizational effectiveness. Both approaches are used, but the growing popularity of the dynamic approach is increasingly noticeable. In the current market situation, maintaining a dynamic approach to efficiency brings more benefits to the organization than just eliminating waste as is the case of the static approach.

The aim of the article is to present two perspectives of economic efficiency, such as static efficiency and dynamic efficiency. Both approaches and their most important features were described in the text. The analysis of source literature is used as a research method.

Keywords: economic efficiency, static efficiency, dynamic efficiency, innovation

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Introduction

The rationale for taking up this topic is that now organizational effectiveness is the basis for the assessment of each organization (Ziębicki 2012), and its determination contributes to the evaluation of the selected organizational strategy. The concept of efficiency is quite complex and can be considered on many levels. One of such areas is the theory of economy according to which efficiency is determined and adopted as economic efficiency.

On the basis of source literature review, two approaches to efficiency according to the theory of economics can be distinguished: static and dynamic (Korenik 2017). They come from various trends of economic theory: neoclassical economics and evolutionary economics (Korenik 2017). These approaches differ significantly, which results in maintaining a given approach in the organization, leading to other consequences and resources (Pyszka 2015). In source literature, it can also be noted that the allocation efficiency (static efficiency) and the contribution of innovation to technological changes (dynamic efficiency) are some of the criteria for assessing the efficiency of economies (Maksimczuk 1998, p. 43).

Static efficiency

Static efficiency is an approach used in economic theory, especially neoclassical economics (Korenik 2017). The genesis of the static approach goes back to the

1920s, when the concept of perfect competition examined the organization as a system that demonstrated the efficiency of resource allocation in the sense of Pareto optimality (Szudy 2013) and also in the context of the general equilibrium concept (Kozuń-Cieślak 2013).

The static approach to efficiency can be divided into two types: technical efficiency and allocation efficiency. Technical efficiency is understood as an efficient way to use resources, but it is also referred to as production (cost) efficiency dealing with the optimal allocation of resources in production processes with the assumption of minimizing all production costs (Korenik 2017). The static approach is aimed at minimizing the waste of resources and their optimal allocation, at the same time referring to the theory of resources (Zbierowski 2012), which teaches how organizations should gain a competitive advantage and better economic results (Ujwary-Gil 2009). In turn, Miąsik (Miąsik 2012, p. 155) emphasizes that this approach applies in particular to technologies used in an organization. Static efficiency, therefore, evaluates the production and distribution of possessed resources, which should be relatively optimal, and additionally managed in such a way that the production possibilities curve can be satiated at a given moment (Kozuń-Cieślak 2013). The static approach, therefore, requires a maximum level of production in a given organization and at a given moment (Korenik 2017). The value of static efficiency is defined as the product of technical efficiency and allocation efficiency. The static approach to efficiency is an element of the dynamic approach, although it does not condition its reception.

The analysis of static efficiency in an organization sets two underlying assumptions. The first is based on the permanent resources that the organization has at a given moment, and the second assumes that the achievement of static efficiency is possible only in the conditions of perfect competition. An organization effective productively should also be effective technically.

Static efficiency according to Korenik is synonymous with the optimal production and allocation of resources held by an organization, with a view to obtaining by the organization a curve of production capabilities that will be known at a given moment in time (Korenik 2017).

Obtaining efficiency in the sense of Pareto (Pareto optimum) is possible only in conditions of perfect competition. These conditions include, among others (Kozuń-Cieślak 2013):

- constant access to optimal information;
- homogeneity of goods.

The conditions mentioned above result in the creation of a not very realistic market structure. The market structure that is the closest to the current market structure is the structure of monopolistic competition, that is, the structure in which the information provided is not optimal and even insufficient, and also with a vast diversity of manufactured goods and services. One can also notice organizations with the possibility of tight market control, often leading to disturbances in the proper functioning of static efficiency (Kozuń-Cieślak 2013).

Dynamic efficiency

The dynamic approach is a different approach to economic efficiency. Its formulation was caused by a different understanding of organizational efficiency as an alternative to the concept of static efficiency, or efficiency understood in the Pareto's sense (the so-called Pareto optimum) (Nowak 2015). The dynamic approach to efficiency is understood as a specific ability of an organization that leads to its growth and development, related to dynamic capabilities (Zbierowski 2012), which refer to such features of the organization thanks to which it can adapt to changing environmental conditions in a short period of time (Penc-Pietrzak 2015), taking into account the introduction of innovations to the organization.

Dynamic efficiency is also considered in the Austrian praxeological trend. Representatives of this trend consider entrepreneurship as a force starting dynamic efficiency. Thanks to this power, it is possible to observe that the organization does not adjust to the prevailing market conditions and at the same time it reacts to them to achieve the state of equilibrium. Later, to optimize processes in the organization (Nowak 2015) entrepreneurial behaviors lead to meeting the goals selected by the organization with the help of ever newer solutions.

According to the definition formulated by I. Kirzner, dynamic efficiency is such an ability of an organization that significantly contributes to the inspiration of entrepreneurial vigilance for new knowledge "*whose existence was not even previously suspected*" (de Soto 2010, p. 29). The entrepreneur is a popularizer of all market processes, and this difference is significant between the static approach and the dynamic approach (de Soto 2010, pp. 9-62). Miąsik points out that the problem of correct understanding of the concept of dynamic efficiency is noticeable. The general and dominant meaning is the reference to the pace of innovative activity in the organization, and thus to the introduction of new products or processes. This importance of dynamic efficiency corresponds to the phenomenon of dynamic competition, which is also focused on technological progress. However, Miąsik emphasizes that one can distinguish another approach to dynamic efficiency, referring to the effectiveness of using resources for innovative purposes (Miąsik 2012, p. 155).

Another definition of dynamic effectiveness is presented by Szudy, according to which dynamic efficiency is the choice of present and future consumption. It means, therefore, the state described by means of the relationship between the level of savings and investment. The same author also notices the growing importance of dynamic efficiency in the current economic situation (Szudy 2013).

The dynamic approach to economic efficiency can be divided into: adaptive efficiency and innovative efficiency (Kozuń-Cieślak 2013).

Adaptive efficiency is the ability by which the organization is able (Korenik 2017) to adapt gradually to changes in the environment while recognizing the problem and responding to it in a short period of time (Kozuń-Cieślak 2013).

Innovative efficiency is called the organization's ability to develop and introduce (Korenik 2017) innovations (Kozuń-Cieślak 2013). These innovations may concern, for example, the improvement of production processes, methods that significantly affect the reduction of any production costs by introducing new technologies to

production processes, new products, forms of organization of activities or methods of financing processes taking place in the organization (Korenik 2017).

Innovative efficiency can be divided into technological and product-related (Kozuń-Cieślak 2013). Technological innovation concerns innovation in the scope of production processes through the introduction of improvements to the technological process and new production methods. Product innovation means innovation in the field of introducing innovations within the manufactured product, taking into account the changing needs of potential customers.

The leitmotiv of dynamic efficiency according to Kozuń-Cieślak is the constant shifting of the production capacity curve to the right (Kozuń-Cieślak 2013), as evidenced, inter alia, by the application of innovations in the production process. In addition, dynamic efficiency involves creating new goals as well as measures to improve the production process. According to de Soto, the goal of dynamic efficiency is to create new goals for the organization (de Soto 2010, pp. 9-62).

On the market of goods where there is no perfect competition, organizations are able to achieve and maintain efficiency in the long term, taking into account the improvement of their processes or products. The dynamic efficiency model is based on the model of evolutionary economics, i.e., taking into account some typical phenomena of imbalance, a case or a crisis related to economic life (Korenik 2017).

Organizations that operate under conditions of uncertainty and risk may get such a state of equilibrium. However, it will be a temporary state destabilized by different variable external factors (Korenik 2017). Thanks to the introduction of innovations into these organizations, be it in the form of new products or in the form of new production process technologies, legal framework, or financial instruments, it is possible to achieve success (Glapiński 2012, pp. 284-285), because they will become competitive.

To achieve dynamic effectiveness, the company has to organize and apply employees' skills, as well as specific features and skillful use of available production technology (Korenik 2017).

It can be noticed that in organizations maintaining a dynamic approach to efficiency, the use of analogous inputs as well as similar manufacturing processes brings different results regarding, inter alia, the number of manufactured products. This phenomenon indicates a certain inefficiency of the organization and shows that not only resources, inputs, production methods or availability of a specific production line have an impact on production. It is also influenced by the appropriate way of managing the organization, and perhaps above all by the motivation of employees servicing this production line. However, there is also a different opinion according to which the motivation of employees is considered to have no significant impact on technical efficiency.

Comparison of two approaches to organizational efficiency

Both approaches to efficiency described in the text differ significantly. It should also be mentioned that the dynamic approach is introduced as an alternative to the static approach due to the critical evaluation of the assumptions of the latter.

Nevertheless, the static approach is also an element of the dynamic approach. In *Table 1*, the most significant elements of the two approaches to economic efficiency are presented, and the differences between them are shown.

Table 1 highlights seven main elements of both approaches to economic efficiency. Although the static approach is an element of the dynamic approach, achieving static effectiveness by the organization does not determine that it will achieve dynamic effectiveness (Kozuń-Cieślak 2013).

The most general difference between the two different approaches to economic efficiency is the time horizon in the context of which the analysis is carried out, which consequently leads to a different understanding of the objectives of the organization's activities (Kozuń-Cieślak 2013). The organization can maintain static efficiency in the short term, while dynamic efficiency is maintained over a long period.

As far as the resources considered in both approaches to economic efficiency are concerned, a different tendency can be noticed. Static efficiency focuses on the optimal use of the resources possessed by the organization for a given period of time and the appropriate allocation of resources, which consequently eliminates waste, which is the goal of static efficiency. Unlike static efficiency, in dynamic efficiency one can see the introduction of new resources to the activities of organizations such as, for example, new technology used in production processes or product innovations, which results in the growth but also development of the organization. The change in the purpose of the two approaches is quite noticeable because organizations are slowly moving away from minimizing waste (static efficiency) in favor of entrepreneurial activities (dynamic efficiency), thanks to which it is possible to discover and create new diverse profit opportunities (Pyszka 2015).

Table 1. Comparison of two approaches

	Static efficiency	Dynamic efficiency
Relationship	Resource-Based View	Dynamic capabilities
Time horizon	Short-term approach	Long-term approach
Type	Technical Efficiency Allocation Efficiency	Adaptive Efficiency Innovative: Efficiency -technological innovation -product innovation
Objective	Avoiding waste	Growth, organization development
Resources	Optimal use of resources and their appropriate allocation	Introduction of new resources (new products, new technological processes, innovations)
Management	Achieving a production capacity curve and knowing it at a given moment	Shifting the production capacity curve to the right
Trend in economy theory	Neoclassical economics	Evolutionary economics

Source: Author's study

The link between the static approach and the resource theory reflects the inability of the organization to be flexible, which helps to maintain static efficiency. A flexible organization is one that uses dynamic capabilities, related to the dynamic approach to economic efficiency, which is mainly manifested by the introduction of innovations in the manufactured products and technological processes carried out.

Conclusions

The analysis shows that the static approach to efficiency is the most common; however, because it focuses primarily on reducing these areas of the organization that cause high costs, it limits the development potential of the organization, which in the current market situation hinders many organizations in their activities.

The development of an organization is associated with significant financial outlays, inter alia, for the implementation of new solutions. The static approach eliminates areas that are highly expensive and therefore does not provide for development investments. Organizations applying this approach focus mainly on cost reduction, without investing in new solutions, which in turn contributes to blocking the development potential. Organizations that invest in their development, incurring large financial outlays for new product solutions or new technological solutions, create their development potential, invest in innovation and become flexible organizations.

It can, therefore, be concluded that under conditions of contemporary competition, the static approach is not sufficient to maintain effective organization activities at a high level of market competitiveness and is often insufficient to implement the strategy selected by them. This opinion is confirmed by the fact that the current economic environment and consumers' needs are changing very quickly, which requires the organization to have some flexibility, which is not a determinant of the static approach. Flexibility can be provided to the organization, inter alia, by implementing continuous innovations, which is related to the dynamic approach.

The discussed approaches to economic efficiency present different perspectives, but nowadays organizations more and more often decide to follow the concept of dynamic efficiency, relying on innovations to increase their competitiveness, and giving up the concept of static efficiency. According to the Smart Industry Poland 2017 survey, in 2016, about 58.6% of Polish companies from the SME sector decided to implement innovations in order to increase their competitiveness. These innovations most often concerned product innovations (37.8%) and process innovations (32.7%). Innovations related to marketing were at the medium level in innovations implemented into the organization (15.5%), and organizational innovations were at the lowest level (8%). The introduction of innovations (as much as 73.3%) was mainly due to the expectations of potential customers (Smart Industry Poland 2017 research report).

Therefore, it is concluded that organizations, maintaining a dynamic approach to efficiency in the present times, when their external environment is a turbulent

environment, are better adapted to operate, as well as better meet the needs of potential customers through, inter alia, the implementation of innovation. It is also essential that dynamic efficiency shows connections with dynamic abilities, or such abilities thanks to which the organization has a chance to become an organization flexible enough to adapt in a short time to changing environmental conditions and create new products or apply innovations in processes technology. An organization that is better adapted to operate in a changing environment has a chance to meet its strategy, but it can also react quickly to the constantly changing market needs. It should also be emphasized that a one-time innovation does not cause the organization to be already innovative or maintain the dynamic approach to efficiency throughout its entire operation. Introducing innovations into manufactured products or technological processes should be a continuous process and preceded with the recognition of market needs because what is innovative today may be obsolete in a few years.

The proof of a better match of the dynamic approach to efficiency in today's situation is that organizations operating in accordance with the assumptions of dynamic efficiency based on an innovative formula are more modern organizations, "thrive on the market shaped by oligopolies and monopolies, achieving extraordinary gains through research and implementation innovation" (Pyszka 2015, p. 23), and the products produced by them, thanks to the introduction of modern technologies, are getting better, which in turn contributes to building a strong brand.

Summing up, on the basis of the quoted sources, it can be concluded that because of the dynamic competition organizations operating in the present situation more and more often maintain dynamic efficiency, acquiring not only goods in the form of innovative solutions, but also gaining new knowledge, new skills or experience, which affects the ability to constantly introduce new solutions to their processes.

References

1. De Soto J.H. (2010), *Sprawiedliwość a efektywność*, Fijorr Publishing, Warszawa.
2. Glapiński A. (2012), *Meandry historii ekonomii*, Oficyna Wydawnicza SGH, Warszawa.
3. Korenik D. (2017), *Podejścia i metody w badaniu efektywności szpitali samorządowych w Polsce*, "Ekonomiczne Problemy Usług", nr 4. DOI: 10.18276/epu.2017.129-15.
4. Kozuń-Cieślak G. (2013), *Efektywność – rozważania nad istotą i typologią*, "Kwartalnik Kolegium Ekonomiczno-Społecznego Studia i Prace / Szkoła Główna Handlowa", nr 4.
5. Maksimczuk A. (1998), *Ustrojowe uwarunkowania efektywności gospodarowania*, Wydawnictwo Uniwersytetu w Białymstoku, Białystok.
6. Miąsik D. (2012), *Stosunek prawa ochrony konkurencji do prawa własności intelektualnej*, Wolters Kluwer, Warszawa.
7. Moczydłowska J.M. (2013), *Efektywność zarządzania kapitałem ludzkim jako element efektywności organizacyjnej*, [in:] Ciska M., Marciniuk-Kluski A. (red.), *Efektywność organizacji*, Wydawnictwo Studio Emka, Warszawa.
8. Nowak M. (2015), *Prakseologiczna ocena użyteczności metody DEA w diagnozie efektywności organizacji*, "Zeszyty Naukowe Politechniki Poznańskiej. Organizacja i Zarządzanie", nr 66.

9. Penc-Pietrzak I. (2015), *Charakterystyka zdolności dynamicznych przedsiębiorstwa w warunkach hiperkonkurencji*, "Studia Ekonomiczne. Zeszyty Naukowe Uniwersytetu Ekonomicznego w Katowicach", nr 229.
10. Pyszka A. (2015), *Istota efektywności. Definicje i wymiary*, „Zeszyty Naukowe Uniwersytetu Ekonomicznego w Katowicach”, nr 230.
11. Smart Industry Poland 2017 research report.
12. Szudy M. (2013), *Efektywność ekonomiczna w ujęciu dynamicznym a sprawność systemu gospodarczego*, "Studia Ekonomiczne / Uniwersytet Ekonomiczny w Katowicach", nr 176.
13. Ujwary-Gil A. (2009), *Koncepcja zasobowej teorii przedsiębiorstwa – całościowe ujęcie i kierunek dalszych badań*, "Przegląd Organizacji", nr 6.
14. Zbierowski P. (2012), *Orientacja pozytywna organizacji wysokiej efektywności*, Wolters Kluwer, Warszawa.
15. Ziębicki B. (2012), *Metodyka oceny efektywności organizacyjnej*, [in:] Mikoła B. (red.), *Historia i perspektywy nauk o zarządzaniu*, Wydawnictwo Fundacji Uniwersytetu Ekonomicznego w Krakowie, Kraków.

STATYCZNE I DYNAMICZNE ANALIZOWANIE EFEKTYWNOŚCI DZIAŁANIA ORGANIZACJI

Streszczenie: W artykule poruszono problematykę dwóch odmiennych podejść do efektywności ekonomicznej, jakimi są efektywność statyczna oraz efektywność dynamiczna. Reprezentują one różne pojmowanie efektywności działania organizacji. Oba podejścia są stosowane, jednakże coraz częściej zauważyć można rosnącą popularność podejścia dynamicznego. W obecnych realiach rynkowych utrzymanie dynamicznego podejścia do efektywności przynosi więcej korzyści dla organizacji niż zatrzymanie się tylko na eliminowaniu marnotrawstwa, jak to ma miejsce w przypadku podejścia statycznego.

Celem artykułu jest przedstawienie dwóch ujęć efektywności ekonomicznej, jakimi są efektywność statyczna oraz efektywność dynamiczna. W tekście więc scharakteryzowano oba podejścia, a następnie dokonano ich porównania z uwzględnieniem najważniejszych cech. Wykorzystaną metodą badawczą jest analiza literatury przedmiotu.

Słowa kluczowe: efektywność ekonomiczna, efektywność statyczna, efektywność dynamiczna, innowacje