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TYPES OF ENTERPRISE ECONOMIC EFFICIENCY IN TERMS OF SUSTAINABILITY

The aim of the research is to examine the interconnections between different types of enterprise efficiency within the framework of the sustainable development model. The methodology of the research is based on theoretical generalization and logical modeling, using tools like classification matrices and conceptual mapping. UN Sustainable Development Framework serves as the analytical basis for examining the interconnections between efficiency types. The analysis demonstrates that productive efficiency plays a central role, connecting operational and financial results with social and ecological outcomes. This confirms that enterprise efficiency cannot be evaluated through isolated indicators but rather considered as an integrated mechanism that ensures long-term stability. The practical significance of the study lies in developing a systematic approach to efficiency management. The findings can be applied in designing strategies related to resource optimization, sustainable growth, and strengthening competitiveness.

Keywords: *economic efficiency, sustainable development, productive efficiency, resources, interconnections, multidimensional.*

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ВИДИ ЕКОНОМІЧНОЇ ЕФЕКТИВНОСТІ ПІДПРИЄМСТВ В МЕЖАХ СТАЛОГО РОЗВИТКУ

Метою дослідження є вивчення системи взаємозв'язків між різними видами ефективності підприємства в межах моделі сталого розвитку. У роботі аналізується, як різні форми ефективності – операційна, продуктивна, фінансова, інвестиційна, алокативна, динамічна, соціальна, екологічна та ін. взаємодіють між собою. Методологічною основою дослідження є теоретичне узагальнення, структурний і порівняльний аналіз, а також логічне моделювання, що дозволяють комплексно дослідити багатовимірну природу ефективності. У якості аналітичної бази обрано модель сталого розвитку ООН, яка відображає сучасний підхід до використання ресурсів і забезпечення рівноваги між економічним зростанням, соціальним добробутом і екологічною відповідальністю. Проведений аналіз дозволяє простежити взаємозалежність різновидів економічної ефективності у межах єдиної системи. Визначено, що хоча кожен вид ефективності має певну спрямованість, їх сукупна дія формує цілісну модель розвитку підприємства, де поліпшення одного виду ефективності сприяє змінам в інших. Продуктивна ефективність відіграє центральну роль у системі, поєднуючи операційні та фінансові результати з соціальними й екологічними наслідками. Оптимальне використання ресурсів має низку наслідків: воно знижує витрати, створює умови для соціального добробуту і зменшує екологічне навантаження завдяки раціоналізації виробництва. Це підтверджує, що ефективність підприємства не може оцінюватися за окремими показниками, а має розглядатися як інтегрований механізм, який забезпечує довгострокову стабільність економічної діяльності. Практичне значення отриманих результатів полягає у можливості використання сформованих висновків для побудови системного підходу до управління ефективністю підприємства. Запропонована модель дає змогу оцінювати ефективність як динамічну структуру, у якій економічні, соціальні та екологічні складові є взаємопов'язаними й взаємопідсилюючими. Результати дослідження можуть бути використані для розроблення управлінських стратегій, спрямованих на оптимізацію ресурсів, підвищення конкурентоспроможності та досягнення збалансованого розвитку підприємства.

Ключові слова: *економічна ефективність, сталий розвиток, продуктивна ефективність, ресурси, взаємозв'язки, стратегічне прийняття рішень.*

Problem statement. The category of efficiency occupies a central place in assessing enterprise performance in modern economic science. Its interpretation has evolved in accordance with the development of markets, technological progress, and social transformations over the years. Earlier, efficiency was mainly viewed through the ratio of costs and results within production activities, but current trends indicate the necessity of a multidimensional approach that integrates various economic factors.

The transformation of global markets and the increasing importance of sustainability require efficiency to be considered as a complex system reflecting the enterprise's ability to ensure long-term growth. The shift towards the principles of sustainable development encourages enterprises to focus on optimizing the use of resources while maintaining social balance and minimizing environmental impact.

In this context, it becomes important to study how different types of efficiency, that affect various business departments, interact within a single integrated model. Understanding these interconnections allows should give us a holistic view of enterprise development in modern

conditions and determine management approaches that ensure stability and competitiveness of the business.

Analysis of recent research and publications. The question of enterprise efficiency has been widely studied by both foreign and domestic economists. Classic approaches to economic efficiency were formed in the works of M. Porter, H. Leibenstein, J. Schumpeter, R. Mefford, and others, who analyzed efficiency from the standpoint of competition, innovation, and internal organization of production. However, most of these studies still focused on isolated aspects, for example, technical or operational efficiency, without giving sufficient attention to the interconnections between different types of efficiency and their combined influence on sustainable enterprise development.

Towards the late 20th century, the understanding of efficiency began to evolve, as ecological constraints and social externalities became more visible in economic development. Scientists, such as H. Daly and J. Elkington, analyzed the idea that efficiency could no longer be reduced to a purely financial or production-based outcome, arguing instead for a multidimensional interpretation in which economic performance must be assessed together with environmental and social results. This later became institutionalized in the triple bottom line concept, where profitability is inseparable from sustainability and social wellbeing. modern authors have also focused on refining the classification and measurement of efficiency. C. Pellegrini identified several interrelated forms, including technical, productive, allocative efficiency, emphasizing that true performance can only be assessed through a complex system of indicators which are connected to the sustainability concept. D. Mardiros later highlighted the limitations of unilateral efficiency assessment, arguing that partial indicators often distort the real picture of enterprise performance and must be replaced with integrated evaluation frameworks.

Alongside these works, other authors examined the broader development context. M. Talmaciu and Z. Sardar emphasized that long-term efficiency and prosperity is only possible when societal progress is combined with responsibility towards the environment. Ukrainian researchers such as S. Kireyev, S. Lobov, contributed to adapting these concepts to the realities of the Ukrainian economy and introduced frameworks for evaluating enterprise performance.

Therefore, this study seeks to examine enterprise efficiency as an interconnected, multidimensional system and define the interconnections. The United Nations Sustainable Development model was chosen for this study as the analytical framework for examining the system of enterprise efficiencies. This model integrates three key dimensions – economic, social, and environmental, which together reflect the modern understanding of sustainable growth. From an economic perspective, the sustainability model makes it possible to examine how material, financial, and informational resources are combined and optimized to ensure production stability and competitiveness. In the social dimension, resources are considered through their impact on employment, motivation, and human capital development. The environmental dimension emphasizes the rational utilization of resources aimed at increasing efficiency through reducing waste, energy consumption, and harmful emissions.

Formulating the purposes of the article. The aim of the article is to analyze the components of the general concept of economic efficiency and then systematize the main types of enterprise efficiency, highlighting their interconnections within the framework of sustainable development. The study seeks to identify how economic, social, and environmental factors interact through operational, productive, financial, and investment mechanisms, and to determine practical implications for improving enterprise management systems and resource optimization.

Presentation of the main research material. The historical development of economic science shows that approaches to evaluating enterprise efficiency have changed in line with the evolution of market mechanisms, technologies, and social factors. While in the past efficiency was most often considered through the ratio of costs to results at the level of enterprises or states, current trends highlight the need for a multidimensional approach that includes various aspects, including financial, market, managerial, environmental, and social.

Deep analysis allows us to identify a range of key types of economic efficiency. This classification covers different departments and business processes and can be presented as follows:

1) *Operational efficiency* is achieved by increasing productivity through business process optimization, cost savings via operational control, and risk reduction through rapid re-planning without additional capital investment. According to M. Porter, operational efficiency also implies performing similar activities to competitors but faster or at lower cost, often as a result of process optimization [1].

2) *Technical efficiency* reflects the connection between the use of resources (capital, labour) and the achieved economic outcome. An enterprise is technically efficient when the available set of resources allows reaching the maximum possible level of output or services [2].

3) *X-efficiency* is closely connected to technical efficiency. It was formulated by H. Leibenstein, and means obtaining maximum output from existing resources with the best available technology. It reflects the ability to reduce costs and increase productivity, mainly due to structural shifts and employee motivation. This type of efficiency is particularly relevant under imperfect competition [3]. R. Mefford also notes that X-efficiency shows how effectively firms operate in real world, considering internal organizational barriers, behavioural factors, and insufficient competitive pressure [4]. The main difference between technical and X-efficiency lies in the fact that technical efficiency is determined by objective technological production limits, while X-efficiency is tied to the human factor. An enterprise can be technically efficient yet X-inefficient if its management allows productivity losses due to poor coordination or weak control.

4) *Productive efficiency* is achieved when production or service provision occurs at minimal cost or maximum output, considering the value of resources. Unlike technical efficiency, which assesses the efficiency of using individual resources, productive efficiency *considers their optimal combination to achieve the best result* [2].

5) *Financial (credit) efficiency* is measured by the reduction of the gap between the actual and normative equity value, by changing the structure of assets and liabilities *without additional investment* [1].

6) *Investment efficiency* is defined separately as the excess of discounted cash inflows over discounted outflows, obtained as a result of attracting additional investment [1].

7) *Allocative efficiency* corresponds to the Pareto efficiency criterion. It is achieved when it is impossible to improve the well-being of one economic agent without worsening the situation of another. This means that resources are distributed optimally according to consumer preferences and production possibilities, and any change would reduce efficiency [5]. OECD also defines allocative efficiency as achieving the lowest costs or maximum profit through optimal resource allocation. C. Pellegrini also highlighted that allocative efficiency has the role to reflect the sellable goods and the price corresponding to the marginal production cost [6].

8) *Dynamic efficiency*, a concept developed by J. Schumpeter, is aimed at the optimal allocation of resources in the long term, which should stimulate innovation. It also involves creating conditions for future economic growth through continuous improvement of production processes and adaptation to market changes [7].

9) *Social efficiency* determines the degree to which an enterprise's economic activity contributes to meeting social needs, ensuring social stability, reducing inequality, and improving quality of life. According to S. Kireyev, it reflects the balance between business profitability and its contribution to societal well-being [8].

10) *Ecological efficiency* shows the ability of an enterprise to achieve its economic goals while minimizing negative impacts on the environment. It involves optimizing resource use and reducing emissions, thus supporting sustainable development and enhancing competitiveness [9].

To get a comprehensive understanding of general enterprise efficiency it is important to analyse how the abovementioned types interact as part of a unified system. Each type of efficiency reflects a specific dimension of resource use. Operational and productive efficiency form the core of internal performance, driven mostly by cost optimization, resource savings, and process improvement. Outcomes, like better organization of labour, technology optimization, and reduction of internal losses enhance productive efficiency, which in turn creates a foundation for allocative efficiency by enabling the company to direct saved resources to the most value-generating areas [10]. This means even technically efficient enterprises may underperform due to personnel inefficiencies, emphasizing the human dimension of enterprise performance.

Allocative efficiency operates at a strategic level, shaping the firm's ability to direct resources toward outputs valued by society and consumers. It aligns internal capacity with market demand, investment priorities, and innovation directions. At the same time, dynamic efficiency ensures that enterprises adapt to shifting market structures, technological changes, and sustainability imperatives. D. Havyatt notes that dynamic efficiency, which was rooted in the Schumpeter's innovation and organizational adaptation concept, drives continuous improvement and long-term capability building [10]. Enterprises could fail to respond to new environmental or regulatory requirements without dynamic efficiency, as production gains would be temporary.

The interdependence of economic, social, and environmental efficiencies becomes increasingly evident in the context of sustainable development. M. Borza highlights that resource utilization must pursue both economic results and long-term ecological and social balance. [11] Concepts like UN Sustainability Model, plus Factor–4 and Factor–10 productivity frameworks demonstrate that enterprises must innovate in ways that boost resource productivity, reducing environmental burden in parallel.

Social efficiency, though also has an important relationship to other types. Effective workforce engagement and human capital development support dynamic and operational efficiency thanks to increased motivation, productivity, and innovation potential. H. Bogt notes concepts such as bounded rationality and bounded self-interest, suggesting that decisions are influenced by organizational culture and societal expectations [12]. As a result, social efficiency strengthens the capability of the enterprise to adapt to the market.

Building on the evolution of sustainability-oriented economic thinking, H. Daly argued that economic activity operates within ecological boundaries, and therefore efficiency must be interpreted in a way that accounts for limited natural resources and ecological regeneration capacity. He emphasized that expanding output at the expense of natural capital ultimately hinders long-term economic stability [13]. This highlights the need to switch from growth-driven models toward a steady-state economic framework, where efficiency is measured through balanced resource use and intergenerational welfare. Daly's groundwork later reflected in J. Elkington's triple bottom line concept, which formalized the idea that enterprise performance must incorporate not just financial efficiency, but also environmental integrity and social wellbeing. Elkington's model demonstrated that economic sustainability is reinforced when productive, operational, and social efficiencies interact in synergy, enabling enterprises to generate durable value [14].

Ultimately, the interconnections between different types of efficiency have a cumulative impact: operational improvements raise productive efficiency > higher productive efficiency supports allocative decisions > dynamic efficiency sustains long-term competitiveness > ecological and social efficiencies safeguard the foundation for sustainable development. Improvements in one dimension are often visible throughout the whole system. And vice versa, small deficiencies in a particular field can hinder overall performance. Therefore, enterprise efficiency should be viewed as an integrated, multidimensional framework supporting sustainable growth.

To better demonstrate the interconnections between different types of efficiency, they will be analysed within the European model of sustainable development. This model, embedded in the UN Sustainable Development Goals [15], is based on the balance of three dimensions: economic, social, and ecological. It emphasizes that development must meet the needs of the present without compromising the ability of future generations to meet their own needs. This concept allows us to view enterprise efficiency as part of a broader system, which includes connections between resources and society, highlighting complex interrelations.

The interconnections between the individual types of efficiency are illustrated in Fig. 1. Positioning the model at the intersection of different dimensions of sustainable development emphasizes that the various types of

efficiency cannot be analysed separately, highlighting the need of a complex viewpoint.

Operational efficiency serves as the foundation for increasing productive efficiency since it focuses on process optimization and cost reduction. It belongs to the economic dimension and forms part of the enterprise's internal environment.

Productive efficiency itself is the central point of the entire system, as it emerges at the intersection of the economic, social, and environmental dimensions of sustainable development. It is defined by the enterprise's ability to combine resources in ways that maximize results. Optimal resource use has several consequences: it reduces costs and ensures economic stability, creates conditions for social wellbeing, and lowers environmental burden through more rational production. Productive efficiency also includes technical efficiency, which characterizes the use of available technological capabilities, and X-efficiency, which depends on behavioural and organizational factors such as management quality and employee motivation.

Dynamic efficiency is a logical continuation of productive efficiency: an enterprise that uses resources optimally adapts more easily to market and technological changes over time.

Productive efficiency is also closely linked with financial efficiency, which lies in the economic dimension, as optimal use and combination of resources reduce production costs and increase financial stability.

Allocative efficiency demonstrates how an enterprise's resource potential is distributed according to societal and market needs. Since productive efficiency provides the basis for meeting consumer preferences, it lies at the intersection of economic and social dimensions, but within the external environment.

Social efficiency results from rational resource use, reflecting the level of social stability and the enterprise's contribution to population well-being. Ecological efficiency also derives from productive efficiency, as process optimization and resource use through modern technologies help reduce environmental impact. Their direct tight connection within the model underscores that enterprise development is impossible without simultaneously considering the interests of people and nature.

Investment efficiency plays an important role in enterprise development. Attracting external investment contributes to technology modernization, more efficient resource use, and consequently higher productivity. In the scheme, it is located in the economic dimension within the external environment.

The diagram also shows that all efficiency types are interlinked through resource flow and decision-making processes. For example, strengthening operational efficiency immediately creates a basis for financial and productive improvements, while the same efforts can indirectly raise social and ecological performance through smarter resource use and waste reduction.

In practical terms, this means that efficiency management should be seen as an integrated framework where changes in one function influence outcomes across the entire enterprise. Businesses can use this insight to identify leverage points, for example, improving staff motivation which can simultaneously enhance X-efficiency, productive efficiency, and indirectly overall financial stability.

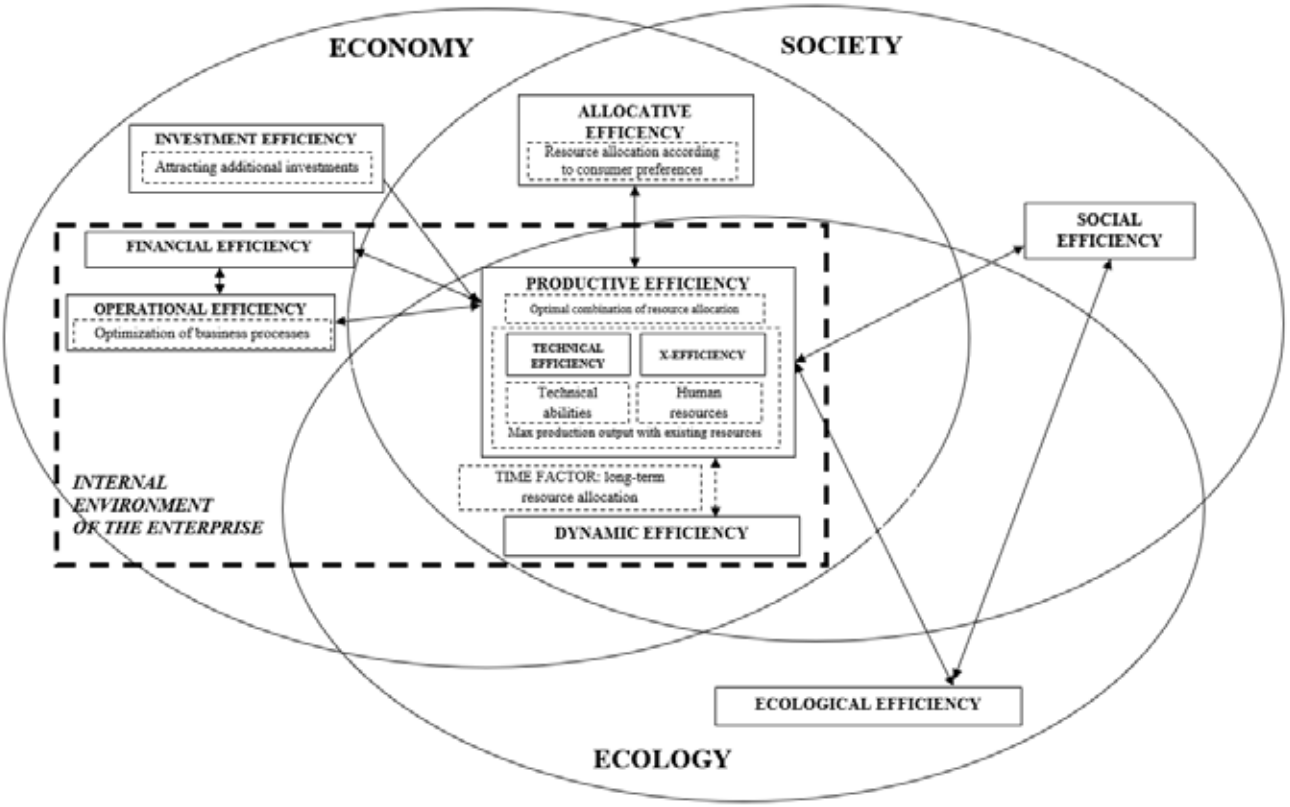

Figure 1. Interconnections between enterprise efficiency types in the context of the sustainable development model

Based on this interpretation, several analytical directions and managerial implications can be derived from the model:

– *Integration of efficiency objectives within the enterprise structure.* The list of business key performance indicators can include various operational, financial, and environmental targets, which will help to maintain balance between profitability and social–ecological responsibility.

– *Systematic decision-making.* Because efficiency types are interrelated, decisions should reflect their combined impact.

– *Optimization of resource combinations for maximum synergy.* The model demonstrates that optimal allocation of material, labor, and technological resources can simultaneously enhance productive, social, and ecological efficiency.

– *Recognition of sustainability as an integral component of efficiency.* Economic, social, and environmental outcomes form a unified system where the achievement of one dimension supports the progress of others, strengthening the general enterprise resilience.

– *Human and organizational factors are important efficiency drivers.* The motivation, qualification, engagement of employees are the key determinants of X-efficiency and directly influence productive efficiency – which is interconnected to all other efficiency types.

Conclusions. The proposed model is based on the principles of sustainable development. The conducted analysis demonstrates that the modern concept of enterprise efficiency can be considered as a multidimensional system that integrates operational, technical, productive, financial, social, ecological, allocative, dynamic, and investment components. Each type of efficiency reflects a specific aspect of enterprise performance. However, their practical significance becomes higher when viewed as an interconnected structure.

Productive efficiency occupies the central position, as it combines technological, behavioural, and organizational factors, determining the enterprise's ability to achieve the maximum output from available resources. The analysis confirms that productive efficiency is interrelated with all other forms (operational, technical, X-, allocative, dynamic, social, ecological, investment efficiency). These relationships indicate that improvement in one area generates secondary effects in others, which highlights the need for a system-based approach to efficiency management.

From a practical perspective, the model emphasizes that enterprises should not evaluate performance solely through financial indicators. Sustainable competitiveness requires maintaining balance between operational productivity, social responsibility, and environmental sustainability. Efficient use of resources strengthens the enterprise's adaptability and creates conditions for stable long-term growth within the sustainable development model.

References:

1. Lobov, S. (2015) Suchasni kontseptsii ekonomichnoyi efektyvnosti diyalnosti ta efektyvnosti upravlinnya pidpryyemstvom [Modern concepts of economic efficiency of enterprise activity and efficiency of enterprise management], *Efficient Economy*, vol. 4. Available at: http://www.economy.nayka.com.ua/?op=1&z=4011

2. Palmer, S., and Torgerson, D. (1999) Economic notes: definitions of efficiency. *BMJ*, vol. 318 (7191). DOI: https://doi.org/10.1136/bmj.318.7191.1136

3. Mefford, R. (2017) X-efficiency: economists and managers view it differently. *Journal of Behavioral Economics for Policy*, vol. 1, no. 2, pp. 5–30. Available at: https://www.sabeconomics.org/wordpress/wp-content/uploads/JBEP-1-2-4.pdf

4. Estoppey, O. (2024) X-efficiency vs. X-inefficiency. Estoppey Value Investments. Available at: https://valueinvestments.ch/en/lexicon/x-efficiency-vs-x-inefficiency

5. Productive and Allocative Efficiency. Blacks Academy. Available at: https://www.blacksacademy.net/ec-016-ecqapa-productive-and-allocative-efficiency.html

6. Pellegrini, C. (1996). Efficienza, stabilità degli intermediari e crescita del reddito: un modello teoretico [Efficiency, stability of intermediaries, and income growth: a theoretical model]. *Papers of the Institute of Economic Policy*, no. 17, Catholic University of the Sacred Heart, Milan.

7. Abel, A., Mankiw, N., Summers, L., and Zeckhauser, R. (1989) Assessing Dynamic Efficiency: Theory and Evidence. The Review of Economic Studies, vol. 56, no. 1, pp. 1–19. Available at: https://scholar.harvard.edu/files/mankiw/files/assessing_dynamic_efficiency.pdf

8. Kyreiev, S. (2009) Ekonomichna efektyvnist [Economic efficiency], Encyclopedia suchasnoyi Ukrayiny. Available at: https://esu.com.ua/article-18769

9. Asif, M. (2023) Environmental efficiency of enterprises: trends, strategy, innovations. *Energies*, vol. 16 (6). DOI: https://doi.org/10.3390/en16062683

10. Havyatt, D. (2017) The components of efficiency. Network, *Australian Competition and Consumer Commission*, no 62, pp. 1–8. Available at: https://www.accc.gov.au/system/files/Network%20March%202017.pdf

11. Borza, M. (2014) The connection between efficiency and sustainability – a theoretical approach. *Procedia Economics and Finance*, vol. 15, pp. 1355–1363. DOI: https://doi.org/10.1016/S2212-5671(14)00599-1

12. Bogt, H. (2021) Efficiency, Types of. *Encyclopaedia of Law and Economics*, Springer. DOI: https://doi.org/10.1007/978-1-4614-7883-6_43-2

13. Erickson, J. (2022) The inconvenient truth of Herman Daly: there is no economy without environment. The Conversation. Available at: https://theconversation.com/the-inconvenient-truth-of-herman-daly-there-is-no-economy-without-environment-193848

14. Elkington, J. (1998) Partnerships from Cannibals with Forks: The Triple Bottom Line of 21st Century Business. *Environmental Quality Management*, vol. 8, no. 3, pp. 37–51. DOI: https://doi.org/10.1002/tqem.3310080106

15. World Commission on Environment and Development (1987) Our Common Future (Brundtland Report). Available at: https://www.are.admin.ch/are/en/home/media/publications/sustainable-development/brundtland-report.html

Література:

1. Лобов С. Сучасні концепції економічної ефективності діяльності та ефективності управління підприємством. *Ефективна економіка.* 2015. Вип. 4. URL: http://www.economy.nayka.com.ua/?op=1&z=4011

2. Palmer S., and Torgerson D. Economic notes: definitions of efficiency. *BMJ.* 1999. Vol. 318 (7191). DOI: https://doi.org/10.1136/bmj.318.7191.1136

3. Mefford R. X-efficiency: Economists and managers view it differently. *Journal of Behavioral Economics for Policy*. 2017. Vol. 1. No. 2. Pp. 25–30. URL: https://www.sabeconomics.org/wordpress/wp-content/uploads/JBEP-1-2-4.pdf

4. Estoppey O. X-efficiency vs. X-inefficiency. Estoppey Value Investments. 2024. URL: https://valueinvestments.ch/en/lexicon/x-efficiency-vs-x-inefficiency

5. Продуктивна та алокативна ефективність. Blacks Academy. URL: https://www.blacksacademy.net/ec-016-ecqapa-productive-and-allocative-efficiency.html

6. Pellegrini C. Efficienza, stabilita degli intermediari e crescita del reddito: un modello teoretico. Quaderni dell'Istituto di politica economica, No. 17. Universita Cattolica del Sacro Cuore, Milan. 1996.

7. Abel A., Mankiw N., Summers L., and Zeckhauser R. Assessing dynamic efficiency: theory and evidence. *The Review of Economic Studies*. 1989. Vol. 56. No. 1. Pp. 1–19. URL: https://scholar.harvard.edu/files/mankiw/files/assessing_dynamic_efficiency.pdf

8. Киреєв С. Економічна ефективність. Енциклопедія Сучасної України. 2009. URL: https://esu.com.ua/article-18769

9. Asif M. Environmental efficiency of enterprises: trends, strategy, innovations. *Energies.* 2023. №16. С. 2683. DOI: https://doi.org/10.3390/en16062683

10. Havyatt D. The components of efficiency. Network. 2017. No. 62. Pp. 1–8. URL: https://www.accc.gov.au/system/files/Network%20March%202017.pdf

11. Borza M. The connection between efficiency and sustainability – a theoretical approach. *Procedia Economics and Finance*. 2014. No. 15. Pp. 1355–1363. DOI: https://doi.org/10.1016/S2212-5671(14)00599-1

12. Bogt H. Efficiency, Types of. *Encyclopedia of Law and Economics. Springer.* 2021. No. 2. DOI: https://doi.org/10.1007/978-1-4614-7883-6_43-2

13. Erickson J. D. The inconvenient truth of Herman Daly: there is no economy without environment. The Conversation. 2022. URL: https://theconversation.com/the-inconvenient-truth-of-herman-daly-there-is-no-economy-without-environment-193848

14. Elkington J. Partnerships from Cannibals with Forks: The Triple Bottom Line of 21st Century Business. *Environmental Quality Management.* 1998. Vol. 8. No. 3. Pp. 37–51. DOI: https://doi.org/10.1002/tqem.3310080106

15. Our Common Future (Brundtland Report). World Commission on Environment and Development. 1987. URL: https://www.are.admin.ch/are/en/home/media/publications/sustainable-development/brundtland-report.html

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