

SCIENTIFIC AND METHODOLOGICAL PRINCIPLES OF FORMING VECTORS FOR ENSURING SOCIO-ECONOMIC SECURITY AND SUSTAINABLE DEVELOPMENT OF ENTERPRISES

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Abstract. The *purpose* of the paper is threefold: to improve the scientific and methodological principles of forming vectors to ensure the socio-economic security and sustainable development of enterprises; to determine strategic vectors to ensure the socio-economic security of enterprises against the backdrop of war and the post-war period, and changes in tax and competition policy; and to forecast the socio-economic security of enterprises and determine ways to promote its growth in a digitalised environment. The article presents the findings of research by scientists into determining sustainable development trends and ensuring the socioeconomic security of enterprises. The scientific and methodological principles for ensuring socioeconomic security and the sustainable progression of enterprises have been improved. Strategic vectors for the sustainable development of enterprises, which are a prerequisite for advancing and strengthening their competitive positions, have been identified, as has the importance of adhering to the principles of social and corporate responsibility. The energy efficiency of enterprises has also been determined, and a list of vectors for ensuring their socioeconomic security, which is a prerequisite for stable functioning, has been formed. A forecast of the state of socioeconomic security has been made, and trends for its improvement have been identified. *Methodology.* To achieve the established purpose and tasks, a set of general scientific research methods was applied. The comprehensive use of these methods made it possible to carry out substantial research. Specifically, the following methods were used: analysis and synthesis; comparative analysis; grouping; economic-static methods; and the graphical method. Using analysis and synthesis and comparative analysis allowed the generalisation of scientists' findings on determining trends in sustainable development and ensuring the socio-economic security of enterprises. The comparative analysis method and grouping made it possible to determine a list of vectors for ensuring the socio-economic security of enterprises, as well as a set of vectors for their sustainable development. The use of economic-static methods made it possible to carry out diagnostics according to social and economic security indicators at the industry level in Ukraine. Using the graphical method allowed the data to be systematised and the results of the study to be presented visually. *Results.* Forecasting the social and economic security of enterprises is important in order to determine the probability of changes in indicators, identify threats and risks, and develop an effective system of arrangements to maintain a stable level of security and guarantee successful long-term development. According to the results of the socio-economic security forecast calculations, there is a need to develop long-term strategic trends for its provision. The scientific and methodological principles for forming vectors to ensure socio-economic security and the sustainable development of enterprises have been improved. This is achieved by adhering to a combination of approaches and stages, while taking into account trends in digitalisation and artificial intelligence. A set of strategic vectors has been formed to help enterprises adapt to an unstable

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market environment, minimise the impact of threats and increase competitiveness in the context of digital transformation, fluctuating taxes and changing competition policies. Alongside this, vectors for the sustainable development of enterprises are provided to promote corporate and social responsibility and ensure compliance with energy efficiency principles. *Practical implications.* The introduction of scientific and methodological principles for ensuring the socio-economic security and sustainable development of enterprises made it possible to identify a set of strategic vectors. The implementation of strategic vectors for sustainable development and ensuring socio-economic security at enterprises will contribute to reducing environmental risks, adhering to the principles of energy efficiency, preserving human capital, innovative development, financial and economic sustainability, and developing corporate responsibility, i.e., it will guarantee the development and implementation of arrangements for steady functioning. Alternatively, forecasting social and economic security is essential for identifying threats and adapting to them. *Value / Originality.* The article improves the scientific and methodological principles for forming vectors to ensure the socio-economic security and balanced development of enterprises. This guarantees stable economic progression and steady functioning by taking threats and risks into consideration, forming a sustainable level of security and creating a safe environment. It proposes strategic vectors for steadfast development and defines vectors for ensuring the socio-economic security of enterprises. A socio-economic security forecast was carried out, confirming the importance of implementing strategic vectors. The comprehensive use of these vectors aims to extend growth in enterprise performance far into the future, restore security, and ensure their continued activity.

Keywords: strategic vectors, sustainable development, corporate and social responsibility, security, socio-economic security, digitalisation, artificial intelligence, tax policy, competition policy, enterprises.

JEL Classification: D81, O10, O15, O23, H30

1. Introduction

In order to identify and take into account changes in socio-economic security indicators, the likelihood of threats and risks over a long period, it is advisable to analyse the current state of the indicators and study their dynamic patterns. Forecast calculations based on these indicators will not only make it possible to determine future trends, but also to develop effective security mechanisms. Furthermore, considering forecast calculations provides an opportunity to assess enterprise stability, identify potential threats, and establish strategic approaches to ensuring socio-economic security. In the current scenario, there is a need to develop a comprehensive set of strategic vectors for sustainable development and security. This would involve taking into account digitalisation trends, war risks, tax and competition policy, and the specifics of post-war recovery. It would also ensure the effective functioning of enterprises by developing social potential, minimising environmental risk, implementing strategic and risk management, and forming a security environment.

The aim of this article is to refine the scientific and methodological foundations for establishing the key areas for ensuring the socio-economic security and sustainable development of enterprises; to develop strategic directions for sustainable development and to establish a set of key areas for ensuring the socio-economic security of enterprises; and to forecast the state of enterprises' socio-economic security and identify ways to enhance it in the context of digitalisation.

In accordance with the purpose, the following research tasks were defined: firstly, to consider the approaches of scientists to determining the trends of sustainable development and ensuring socio-economic security; secondly, to improve the scientific and methodological principles of forming vectors for ensuring socio-economic security and sustainable development of enterprises; thirdly, to identify a group of strategic vectors as a prerequisite for the stability of the functioning of enterprises; and finally, to carry out forecast calculations of the state of socio-economic security and develop trends for its improvement.

In order to achieve the purpose and the assigned tasks, a set of general scientific research methods was applied. These included analysis and synthesis, comparative analysis, grouping, economic and static methods, and graphic method.

2. Theoretical Approaches to Identifying Trends in Sustainable Development and Ensuring the Socio-Economic Security of Enterprises

Given the current variability of tax and competition policies, as well as the uncertainty surrounding the post-war recovery, it is becoming increasingly important to develop strategic principles that will enable enterprises to function effectively, reduce their vulnerability to threats, adapt to risks and remain competitive in the long term. One of the prerequisites for enterprises to be economically efficient and form competitive advantages is to formulate strategic

vectors of sustainable development. This will allow social responsibility, the enhancement of corporate culture, energy efficiency and management processes to be combined. Alongside this, enterprises need to create a secure environment that reflects the need to determine strategic vectors of socio-economic security. This will enable well-founded decisions to be made on stabilising business activities.

Among foreign scientists, the issue of ensuring socio-economic security in terms of compliance with sustainable development goals has been addressed in the works: Pulle N., Sampath P., Wijayaweera D., Perera S., Jayathilaka R., Dabare U. (2026) investigated the importance of ensuring food security as a component of socio-economic security, identified the need to implement innovative methods, strategies and sustainable development; Lukáč J., Kudlová Z., Kopčáková J., Gallo P. (2025) conducted a thorough analysis of the impact of socio-economic and demographic factors on the security situation and established the need to implement effective strategies to protect the population from cyber threats; Khan N., Furnell S., Bada M., Nurse J.R.C., Rand M. (2025) revealed the importance of security support for small and medium-sized enterprises, the need to strengthen cybersecurity; Smal T., Marín M. J. A., Myślińska-Wiepraw J. (2025) conduct a detailed study of the financial condition of the enterprise to determine the level of economic security, determine the impact of turbulence on the state of security; Grzelak M., Owczarek P., Stoica R.-M., Voicu D., Vilău R. (2024) analysed the impact of vehicle operation efficiency on the financial security of enterprises, formulated recommendations for increasing profitability and rationalising cost planning.

Karpenko and Maizel (2023) examined the principles of sustainable development in enterprise operations in detail, identifying the signs and factors of sustainable development and noting the importance of management based on these principles. Ohienko A. (2024) considered the structure of the mechanism for ensuring the sustainable development of business entities and identified its principles. The study by Petrolyuk Y. and Grebeniuk N. (2024) reveals the peculiarities of the functioning of enterprises in compliance with the principles of sustainable development. It determines the potential for growth in financial indicators and prospects for effective work in the long term. The authors, Sliusareva L. V., Zhmailov V. M. (2019), conducted a detailed study of the essence of sustainable development and identified the environment in which it is formed. Tokmakova I. V., Kurylovych V. R., Kazakov A. G. (2023) conducted a thorough study of the implementation of a sustainable development strategy, the features of the implementation of sustainable development processes, which should ensure the efficiency of economic activity.

Scientists considered the issue of determining directions and vectors for ensuring the socio-economic security of enterprises: Garkava V., Klishchevska A. (2021) improved the mechanism of economic security at the regional level, which will allow identifying internal and external threats, determining development vectors; Hnatenko V. S. (2021) considered the vectors and directions of ensuring the economic security of the state; Ivonchak I. (2020) examined the principles of ensuring the economic security of enterprises; Kibalnikov A., Ivaniuta T. (2025) conducted a detailed study of the social component of enterprise security, identified its indicators and a group of indicators; Utenkova K. (2019) reflected the forms of economic security at the enterprise level; Cherep A., Cherep O., Dashko I., Ohrenych Yu., Bexhter L. (2025) proposed a model for ensuring socio-economic security, the application of which will contribute to increasing the level of security.

Furthermore, Cherep A., Dashko I. and Ohrenych Yu. conducted an analysis of the vectors of digital transformation and the development of innovative technologies (2025).

The approaches considered by scientists confirm the appropriateness of diagnosing the state of socio-economic security, as well as improving strategic vectors of sustainable development and ensuring socio-economic security. This will have practical significance for enterprises.

3. Research into the State of Socio-Economic Security of Enterprises

Recognising the importance of increasing socio-economic security, an economic and social indicator forecast was produced for Ukrainian industrial enterprises using the PREDSKAZ.ETS function. Initially, a forecast of industry economic indicators was produced for the period 2025–2027. These indicators present the state of financial and economic activity in the industry and are an indication of the economic component of socio-economic security. An analysis of financial and economic performance indicators makes it possible to assess the state of financial stability, production capacity and investment activity. The indicators examined for 2027, in contrast to 2024, show an increase in the share of output sold by industrial enterprises to 19%, a rise in the share of output produced to 15.77%, a growth in value added at cost by 18.77%, the value of goods and services purchased by 13.39%, gross operating profit by 20.52% and capital expenditure by 9.42%; however, profit before tax fell by 17.85% and net profit by 27.20% (Fig. 1). In summary, the forecast trends demonstrate a slight improvement in the economic component of socio-economic security, as reflected in the economic indicators. However, the reduction in financial results

and net profit confirms the importance of implementing security measures, which will further improve financial indicators.

The human resources and social indicators are analysed through the example of the industry of Ukraine, which act as indicators of the social component of socio-economic security and confer the possibility to analyse the dynamic pattern of the use of labour potential, employment levels, and wages. The data pertaining to human resources and social indicators at industrial enterprises exhibited variability. In contrast to the year 2024, the year 2027 was characterised by an increase in the average monthly salary by 54.62%, personnel costs by 18.29%, employee salary costs by 19.43%, and social arrangement costs by 11.37%.

Concurrently, the number of employees decreased by 21.79%, the number of employed workers decreased by 21%, and the number of hours worked decreased by 21.55% (Figure 2). The human resources and social indicators that were the focus of the study demonstrated variable dynamic patterns, thus indicating the instability of the state of socio-economic security and the feasibility of implementing vectors of sustainable development and ensuring security.

The results obtained show that growth in production indicators is not accompanied by improvement in financial and economic performance indicators, and that there is a high level of costs and a significant reduction in profitability. Furthermore, growth in production volumes does not guarantee improvement

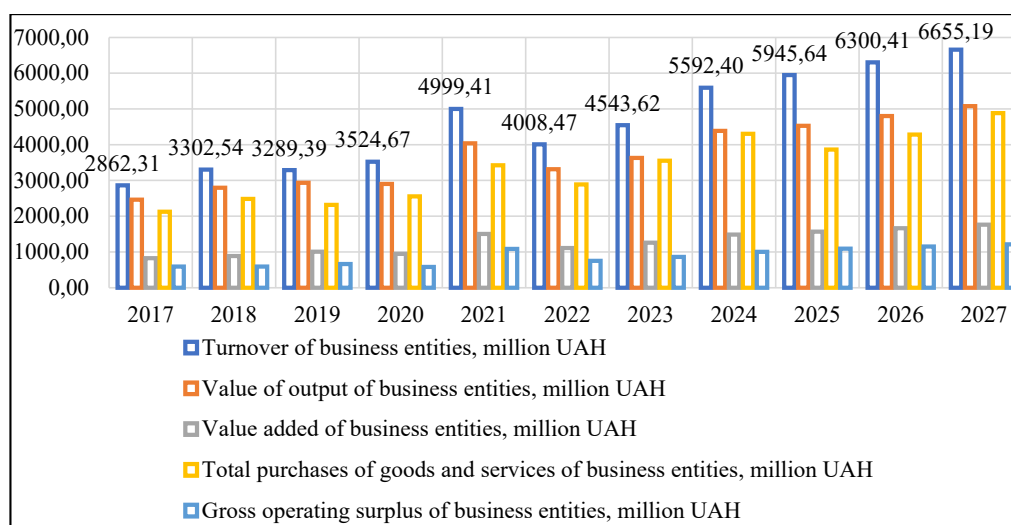


Figure 1. Dynamic Pattern of Economic Indicators of Ukrainian Industry During 2017-2024 and 2025-2027 (Forecast), million UAH

Source: calculated by the authors based on (State Statistics Service. Main indicators; State Statistics Service of Ukraine. Statistical information)

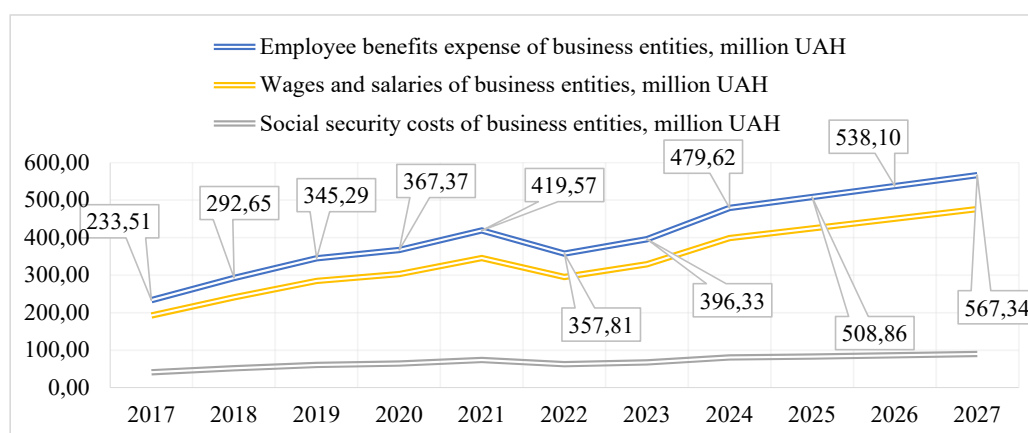


Figure 2. Dynamic Pattern of Personnel and Social Indicators of the Ukrainian Industry During 2017-2024 and 2025-2027 (Forecast), million UAH

Source: calculated by the authors based on (State Statistics Service. Main indicators; State Statistics Service of Ukraine. Statistical information)

in the socio-economic security of enterprises. Taking this into account, practical recommendations are needed to increase the level of socio-economic security.

4. Strategic Directions for Sustainable Development and Ensuring the Socio-Economic Security of Enterprises as a Prerequisite for the Stability of their Activities

Taking into account the theoretical approaches considered for determining sustainable development trends and ensuring the socio-economic security of enterprises, the study results established the need for a unified approach to forming vectors for ensuring socio-economic security and sustainable development. This provides an opportunity to improve the scientific and methodological principles for ensuring socio-economic security and the sustainable development of enterprises. This is achieved by adhering to a combination of approaches and stages, while taking into account the trends of digitalisation and artificial intelligence. This provides a means of identifying a set of strategic vectors that guarantee the sustainability of economic development and stable functioning, through the introduction of the principles of social and corporate responsibility. It also considers threats and risks, and helps to form a stable level of security and create a safe environment (Figure 3). The improved scientific and methodological principles are based on a set of approaches that are implemented through a series of stages.

The process of establishing a methodological basis involves identifying a set of interconnected elements, including the purpose, objectives, principles, methods, tools, subjects and objects, personnel, financial resources, information resources, and software. Separating this set is important because it provides a means of forming a set of strategic vectors for the enterprise, based on determining the necessary resources and making provision for its capabilities and needs.

It is important to take into consideration changes in the external and internal environment, as digital transformation processes are taking place and artificial intelligence technologies are being introduced. The influence of economic, political, legal, financial, personnel, investment and innovation factors is also changing, requiring constant research and timely adaptation. Furthermore, these factors affect socio-economic security indicators, so it is advisable to consider them and develop strategies to mitigate their impact. In the meantime, enterprises are tasked with the introduction of principles of social and corporate responsibility and environmental balance, which correspond to the trends of sustainable development. Consequently, the implementation of this stage will

facilitate the identification of the advantages and disadvantages in terms of socio-economic security, thereby ensuring their consideration when determining the vectors.

An assessment of the state of the enterprise will enable a comprehensive analysis of the market, competitors, resource potential and financial and economic activity indicators to be carried out. It will also clarify the feasibility of improving indicators by stabilising socio-economic security and determining development trends, for which the development of strategic vectors is required.

Taking into account trends in digitalisation and artificial intelligence is important for the development of effective and efficient strategic vectors. Implementing these vectors will guarantee long-term sustainability and stability, as well as consideration of threats and risks. In particular, enterprises are advised to use modern technologies and programmes based on artificial intelligence and automation to speed up development and decision-making and to track and detect threats.

It is also advisable to assess and minimise threats and risks to socio-economic security and sustainable development. Implementing this stage will make it possible to analyse the impact of existing threats and the current security situation, identify threats to development and, taking their impact into account, develop effective strategic approaches to stabilise security and development.

By determining the strategic priorities of sustainable development – namely, the principles of corporate social responsibility and environmental balance – the authors will be able to study the experience of foreign enterprises, consider sustainable development trends and legislative requirements, and use these findings to inform the development of sustainable strategies.

The choice of indicators used to assess security and determine the development of an enterprise is specific to each enterprise. When determining the indicators, it is necessary to consider the state of socio-economic and environmental security, the study of corporate culture and the indicators of financial and economic activity.

The importance of studying the state of socio-economic and environmental security, corporate culture, and financial indicators of the enterprise has been emphasised. Implementing this stage will enable the current situation to be analysed according to the specified indicators, vulnerabilities to be identified, and these to be taken into account when setting strategic priorities.

Forming a set of strategic vectors for an enterprise is an important stage, as it involves separating a set of vectors and dividing them into groups: one for sustainable development, and one for ensuring socio-economic security. Adhering to these vectors comprehensively will guarantee life-sustaining activity,

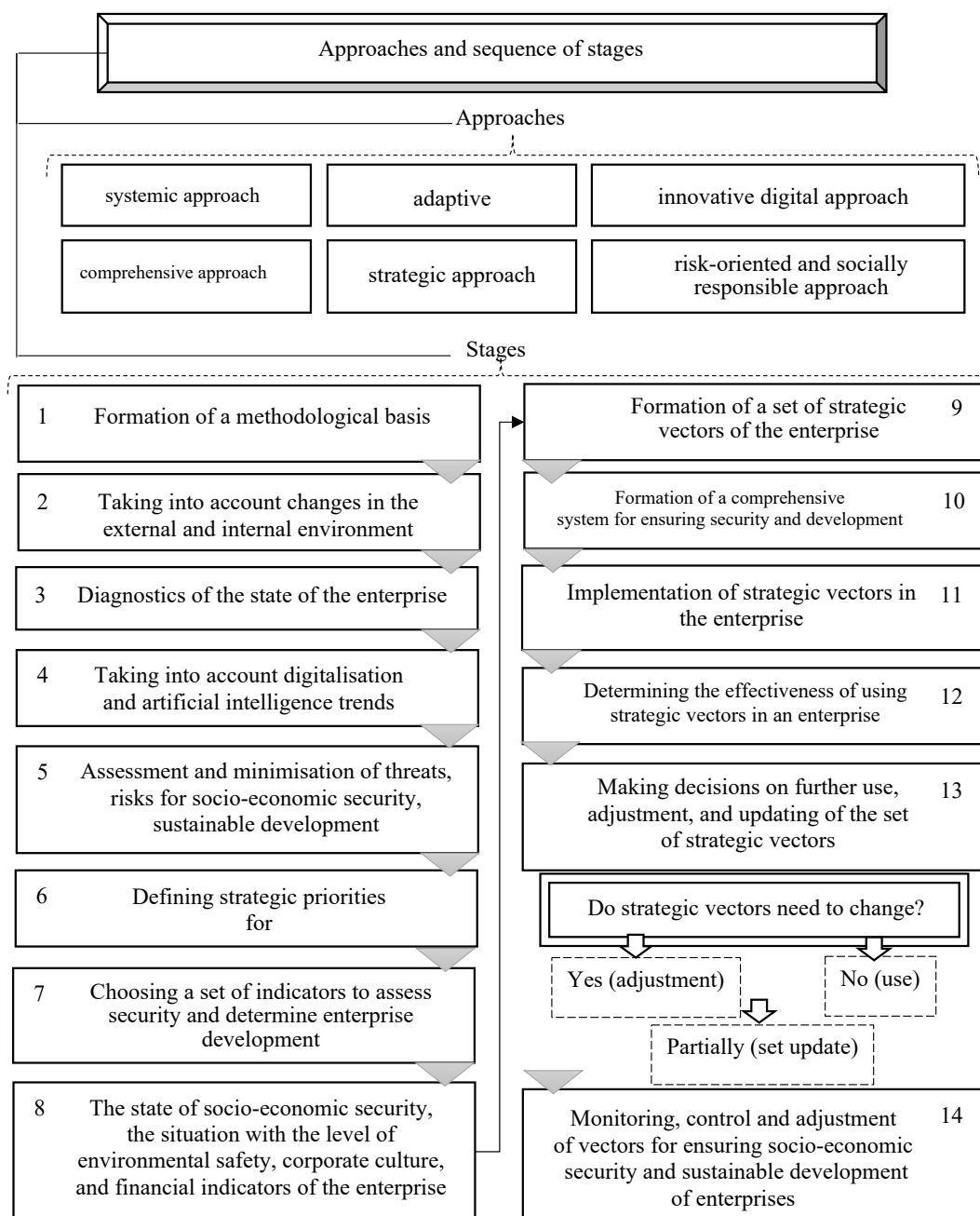


Figure 3. Scientific and Methodological Principles for the Formation of Vectors for Ensuring Socio-Economic Security and Sustainable Development of Enterprises

Source: formed by the authors on the basis of (Garkava, Klishchevska, 2021, pp. 16-22; Hnatenko, 2021, pp. 95-97; Ivonchak, 2020, pp. 76-79; Kibalnikov, Ivaniuta, 2025, pp. 156-159; Ohiienko, 2024, pp. 223-226; Ovcharenko, Dubnytskyi, Fedulova, 2020, pp. 58-64; Sydorchuk, 2019, pp. 179-182; Tulchinskiy, Andrianov, 2025, pp. 263-266; Tymchyshyn, 2020, pp. 26-29; Zhyvko, Slipa, Volnyh, 2015, pp. 211-214)

stable growth of indicators, stable functioning, security development and minimisation of the impact of threats and risks.

Consequently, a set of strategic vectors has been formulated, which are divided into two groups (see Figure 4): a group of strategic vectors of sustainable development; a group of strategic vectors of ensuring socio-economic security. The implementation of strategic vectors of sustainable development guarantees

the stability of economic development, adaptation to changes, and competitiveness in the long term through the introduction of the principles of social and corporate responsibility, environmental balance, and the introduction of innovations.

Conversely, the implementation of strategic vectors aimed at ensuring socio-economic security is instrumental in safeguarding the stability of functioning, with a view to threats and risks. The implementation of

vectors also guarantees the development of potential over a long-term horizon through the improvement of management mechanisms, the anti-crisis management system, the formation of a stable level of security and the creation of a safe environment.

The authors have identified the critical strategic vectors of sustainable enterprise development that, if observed, will guarantee life-sustaining activity, stable growth and sustainable development (see Figure 5). One important vector is the social one, which focuses on observing the principles of social responsibility. This ensures the social protection of employees, retention of personnel, and creation of conditions for their development in the current climate. Implementing this vector ensures the development of human capital in the long term. Alongside the social aspect, a personnel vector was identified, taking into account the principles of corporate responsibility to create a favourable climate within the team, improve employee engagement and increase labour productivity to ensure the effectiveness of enterprise operations. An environmental vector was also identified, requiring the development of a comprehensive set of arrangements based on the principles of ecological balance to ensure the effective use of resources and reduce environmental pollution, thereby ensuring long-term environmental friendliness of production. The financial and economic vector plays an important role, based on the principles of financial soundness to ensure the effective use of resources and improve financial planning and forecasting. This will stabilise the financial standing in future periods. The digitalisation vector focuses on compliance with the principles of continuous innovative development to implement innovations, software products and technologies that will facilitate the enterprise's digital transformation while taking into account environmental friendliness

in production. The corporate vector is based on compliance with the principles of corporate responsibility and the development of a corporate culture and business ethics. This will increase trust among employees, partners and suppliers, and improve investment attractiveness, guaranteeing a positive long-term image. As for the management vector, it is implemented through strategic and anti-crisis management to help the enterprise adapt to changes and develop quality solutions, thereby guaranteeing the effective management of business processes. The security vector is of great importance and is based on compliance with the principles of information stability and cybersecurity. It involves the rational use of information resources to protect against threats and information risks, and ensures compliance with commercial secrets. This guarantees the continuity of activities. The logistics vector is also important and is based on developing logistical connections. This should minimise the risk of supply chain disruption and ensure the enterprise's operational flexibility. It makes sense to specify the investment and innovation vector, which focuses on ensuring the continuity of innovative activity by attracting investment and fostering innovative potential. The energy vector, which focuses on optimising energy consumption to minimise energy risks, is of paramount importance and should ensure the continuity of production processes. In the context of sustainable development goals, legal vectors have been identified that focus on adapting enterprise work to the regulatory and legal environment. This should contribute to reducing legal risks and ensuring legal protection. It is imperative to acknowledge that adherence to the identified vectors of sustainable development is paramount for enhancing socio-economic security and ensuring sustainable development over the long term.

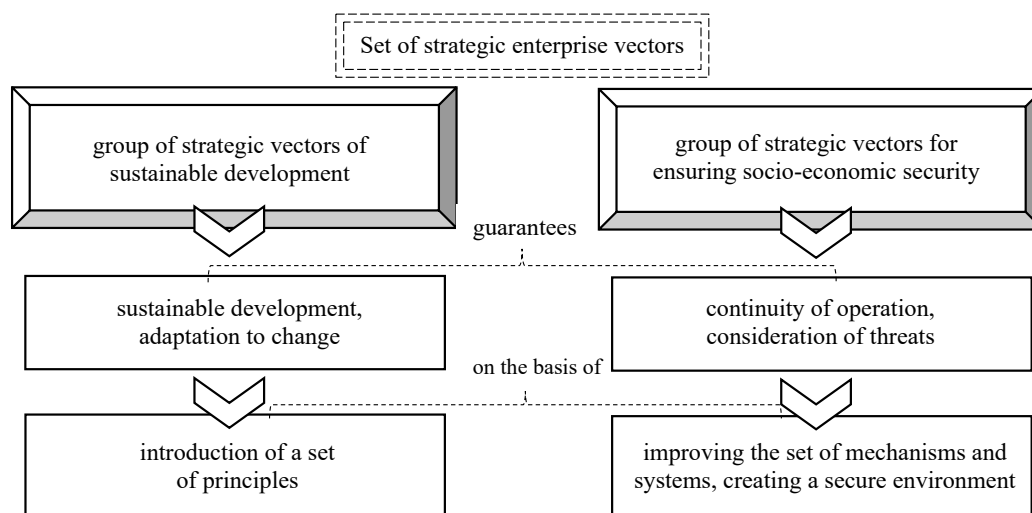


Figure 4. Set of Strategic Vectors for Enterprises

Source: generated by the authors

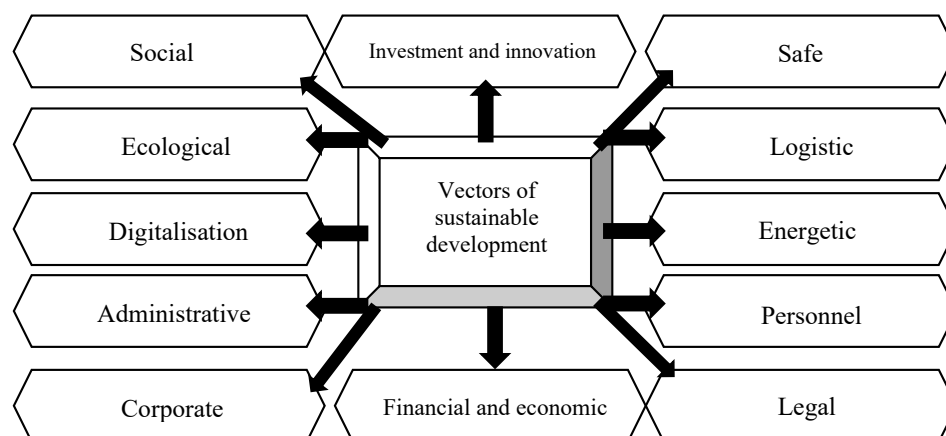


Figure 5. Vectors of Sustainable Development of Enterprises

Source: formed by the authors on the basis of (Demianenko, 2024; Karpenko, Maizel, 2023, pp. 101-108; Lipych, Kushnir, Khilukha, 2025; Ohienko, 2024, pp. 223-226; Petrolyuk, Grebeniuk, 2024; Shiusareva, Zhmailov, 2019, pp. 88-90; Tokmakova, Kurylovych, Kazakov, 2023, pp. 101-105)

According to the study's findings, a set of vectors for ensuring socio-economic security was formed to stabilise enterprise operations by developing security and minimising the impact of threats and risks (Figure 6). The financial soundness vector is of major importance as it focuses on preventing financial downturns and crisis situations and on preventing bankruptcy. This is achieved by implementing financial measures that will stabilise enterprise operations and develop financial security in the long term. Additionally, the vector of preserving human resources has been determined. It focuses on overcoming personnel risks and developing personnel under crisis conditions by implementing a personnel area that ensures the preservation of enterprise personnel reserves and develops personnel security. The next vector is social protection, which should prevent and overcome social risks. This requires the formation of implementation areas and contributes to the development of social security. The objective of the information stability vector is to prevent and overcome information threats by implementing an information trend that will guarantee the development of information security. The anti-crisis management vector is aimed at preventing bankruptcy by implementing anti-crisis and management areas, which will contribute to the development of socio-economic security. With regard to the investment support vector, its function will be to facilitate the identification of threats and risks to investment activity. This will be achieved by implementing arrangements within the investment area with the aim of developing investment security and stabilising the enterprise's activities. It is important for enterprises to implement the innovation development vector, which provides an opportunity to overcome innovation threats and risks by introducing arrangements within the innovation area

aimed at developing innovation security. The digital stability vector aims to minimise technological failures and stabilise digital infrastructure to prevent digital risks. It is achieved by implementing digital trends and guaranteeing digital security. The environmental security vector aims to prevent environmental risks and threats, reduce environmental costs and contribute to the stability of enterprise activities. The operational efficiency vector is also very important, as it focuses on overcoming operational risks and ensuring the continuity of economic activity. Implementing this vector will enable costs to be reduced during a crisis. The highlighted vectors are closely linked to the sustainable development vectors and must be implemented together to ensure sustainable development and a secure environment.

Upon consideration of the set of vectors, it can be posited that the proposed approach is of practical significance, insofar as it combines mechanisms for ensuring socio-economic security with the principles of sustainable development, whilst also taking into account digitalisation trends. Unlike traditional approaches, which only cover the study of individual security components, the proposed approach enables effective management decisions to be made, adaptation to the market environment to be achieved, and management to be based on a comprehensive combination of security components and vector separation. It should also be noted that the practical significance of the set of formed vectors lies in their potential for testing in enterprises during risk management processes, socio-economic security assessments, and development strategy development. Testing these vectors will help enterprises adapt to threats and risks, maintain a stable level of security and ensure the sustainability of their activities.

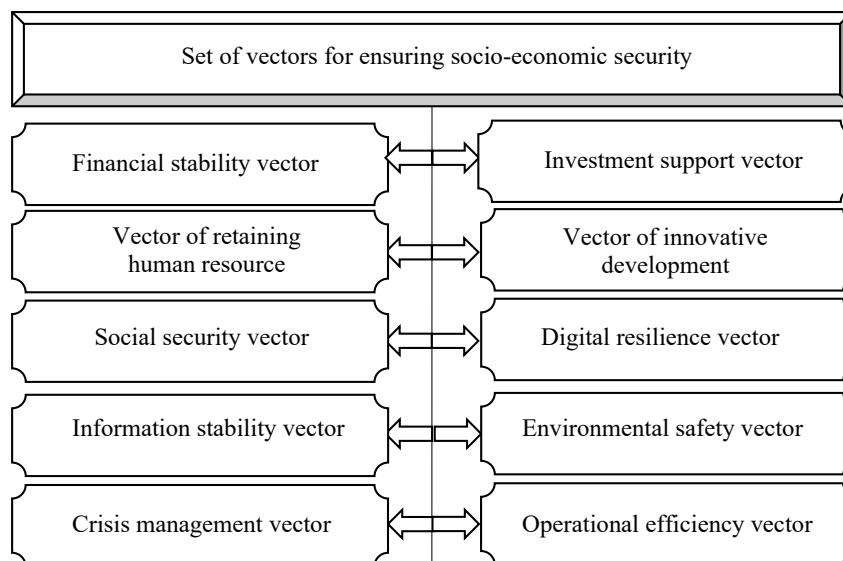


Figure 6. Set of Vectors for Ensuring the Socio-Economic Security of the Enterprise

Source: formed by the authors on the basis of (Garkava, Klishchevska, 2021, pp. 16-22; Garkavyi, 2024, pp. 60-67; Hnatenko, 2021, pp. 95-97; Ivonchak, 2020, pp. 76-79; Kibalnikov, Ivaniuta, 2025, pp. 156-159; Utenkova, 2019, pp. 134-141)

The process of creating a comprehensive system to ensure security and development has begun. This will enable the long-term maintenance and improvement of the enterprise's socio-economic security, promote successful development, respond to threats and risks, and create a safe environment.

Implementing strategic vectors – namely, a group of strategic vectors for sustainable development and ensuring socio-economic security at the enterprise – is of paramount importance. This stage extends far into the future, with the results of its completion being used to assess its effectiveness.

The next stage is to determine the effectiveness of using strategic vectors in the enterprise. This involves studying the effectiveness of implementing the proposed set of vectors and determining their impact on performance indicators. It also involves adapting to long-term changes, stabilising indicators, taking threats and risks into account and neutralising them, and developing enterprise potential and creating a safe environment.

The results of the previous stage are taken into consideration in the decision-making process regarding further use (the application of vectors made it possible to achieve the expected results) and adjustment (the application of vectors made it possible to partially achieve the expected results). Updating the set of strategic vectors also takes place on the basis of taking into account digitalisation trends, the emergence of threats and risks, the variability of enterprise indicators and the principles of corporate and social responsibility.

The final stage involves monitoring, controlling and adjusting vectors to ensure the socio-economic

security and sustainable development of enterprises. This guarantees control over vector formation, implementation of all stages and changes to the set of vectors to ensure compliance with sustainable development priorities and the socio-economic security of the enterprise.

The application of these established vectors to sustainable development and the safeguarding of socio-economic security in business operations will contribute to operational stability and to the identification and mitigation of threats and risks. It will also ensure resilience to crises, and the development and maintenance of a high level of security, thereby guaranteeing operational effectiveness in times of crisis.

The application of advanced scientific and methodological principles for defining the vectors of socio-economic security and sustainable development of enterprises will make it possible not only to develop a set of strategic vectors, but also to identify strategic directions for development in line with digitalisation trends. Furthermore, this will ensure the resilience of socio-economic security, create a safe environment, ensure the stability of financial and economic conditions, promote the environmental sustainability of operations and safeguard staff safety.

5. Conclusions

A study was conducted on approaches to determining areas of sustainable development and ensuring the socioeconomic security of enterprises. The authors have improved the scientific and methodological principles for ensuring the socio-economic security

and sustainable development of enterprises. These principles are based on adherence to certain approaches and a combination of stages, taking into account trends in digitalisation and artificial intelligence. Adherence to these principles enabled a set of strategic vectors to be identified. This study examined approaches to identifying areas of sustainable development and ensuring the socioeconomic security of enterprises. The authors have improved the scientific and methodological principles for ensuring the socio-economic security and sustainable development of enterprises. These principles are based on adherence to certain approaches and a combination of stages, taking into account trends in digitalisation and

artificial intelligence. Following this approach, the authors identified a set of strategic vectors. The group of vectors of socio-economic security is comprised of the following: the financial stability vector; the vector of preserving human potential; the vector of social protection; the vector of information stability; the anti-crisis management vector; the investment support vector; the innovative development vector; the digital sustainability vector; the environmental safety vector; and the operational efficiency vector. A forecast of the state of socio-economic security was conducted, which confirmed the appropriateness of utilising the selected group of vectors for the stability of work and the continuity of enterprise functioning.

References:

- Cherep, A., Cherep, O., Dashko, I., Ohrenych, Yu., & Bexhter, L. (2025). Strategic model of ensuring socio-economic security of enterprises in the context of innovative development. *Financial and credit activity: problems of theory and practice: publication of scientific papers*, 6 (65), 377–391. <https://doi.org/10.55643/fcaptp.6.65.2025.4936>
- Cherep, A., Dashko, I., & Ohrenych, Yu. (2025). Strategic vectors of digitalisation of the Ukrainian economy based on the formation of an open information society. *Baltic Journal of Economic Studies*, 11(5), 168–176. <https://doi.org/10.30525/2256-0742/2025-11-5-168-176>
- Demianenko, T. (2024). Directions of ensuring sustainable development of innovation-oriented enterprises. *Adaptive Management: Theory and Practice. Series "Economy"*, 18 (36). <https://amtp.org.ua/index.php/journal2/article/view/642>
- Garkava, V., & Klishchevska, A. (2021). Formation and implementation of the concept of economic security in the management of the region's economy. *Economic analysis*, 31(2), 14–24. <https://www.econa.org.ua/index.php/econa/article/view/1924>
- Garkavyyi V. (2024). Economic security as a mandatory element of sustainable development. *International Science Journal of Management, Economics & Finance*, 3(3), 58–69. <https://dspace.dsau.dp.ua/handle/123456789/10199?locale=uk>
- Hnatenko, V. S. (2021). Development of the main vectors for ensuring of the economic security of Ukraine. *Public administration and customs administration*, 1 (28), 94–98. <http://biblio.umsf.dp.ua/jspui/handle/123456789/4408>
- Ivonchak, I. (2020). Features of enterprise economic security in Ukraine. *Intellect XXI*, 2, 75–80. https://intellect21.nuft.org.ua/journal/2020/2020_2/14.pdf
- Karpenko, O., & Maizel, S. (2023). Theoretical aspects of ensuring enterprises sustainable development. *Scientific journal «ECONOMIC SYNERGY»*, 1 (7), 98–111. <https://es.istu.edu.ua/index.php/EconomicSynergy/article/view/95>
- Kibalnikov, A., & Ivaniuta, T. (2025). Economic indicators of the social component in assessing the level of socio-economic security of food industry enterprises. *Kyiv Economic Scientific Journal*, 11, 155–161. <https://journals.kymu.kyiv.ua/index.php/economy/article/view/309>
- Lipych, L., Kushnir, M., & Khilukha, O. (2025). Sustainability in Entrepreneurship: Typology of Companies and Pathways for Integrating Sustainability Principles. *Academic visions*, 48. <https://academy-vision.org/index.php/av/article/view/2251>
- Ohiienko, A. (2024). Sustainable development of enterprises: essence of the concept, prospects, and obstacles. *Scientific journal "Modeling the development of the economic systems"*, 3, 222–228. <https://mdes.khmnu.edu.ua/index.php/mdes/article/view/404>
- Ovcharenko, O. V., Dubnytskyi, V. I., & Fedulova, S. O. (2020). Formation of the structure of the comprehensive mechanism of ensuring the region's economic security. *Science, Technologies, Innovations*, 4, 56–67. https://nti.ukrintei.ua/?page_id=3197&lang=en
- Petrolyuk, Y., & Grebeniuk, N. (2024). Sustainable development as a strategic advantage for an enterprise. *Economy and Society*, 68. <https://doi.org/10.32782/2524-0072/2024-68-148>
- Sliusareva, L. V., & Zhmailov, V. M. (2019). Sustainable enterprise development: dualism of conceptual approaches. *Actual problems of innovative economy*, 4, 87–92. <https://repo.btu.kharkiv.ua/items/0f47e040-c3fc-45a1-b0fb-a5e079ebb012>
- State Statistics Service of Ukraine. Statistical information. <https://www.ukrstat.gov.ua/>
- State Statistics Service. Main indicators. <https://stat.gov.ua/uk>

- Sydorchuk, O. G. (2019). The Social Security Strategy of Ukraine: Sequence of Formation and Implementation Directions. *Economic problems*, 1 (39), 176–183. https://www.problecon.com/article/?year=2019&abstract=2019_1_0_176_183
- Tokmakova, I. V., Kurylovykh, V. R., & Kazakov, A. G. (2023). Conceptual provisions of ensuring sustainable development of enterprises. *Bulletin of Transport and Industry Economics*, 84, 99–107. <http://lib.kart.edu.ua/bitstream/123456789/21916/1/Tokmakova.pdf>
- Tulchinskiy, R., & Andrianov, Y. (2025). Methodological principles of state policy of ensuring economic security of the national economy in modern conditions of sustainable development. *Economic space*, 208, 261–267. <https://economic-prostir.com.ua/article/208-metodologichni-zasady-derzhavnoyi-polityky-zabezpechennya-ekonomichnoyi-bezpeky-naczionalnoyi-ekonomiky-v-suchasnyh-umovah-stalogo-rozvytku/>
- Tymchyshyn, Yu. V. (2020). Conceptual bases of formation of strategies of economic security of regions. *Regional economy*, 4, 24–31. <http://jnas.nbuv.gov.ua/article/UJRN-0001255986>
- Utenkova, K. (2019). Economic security as a component of Ukraine's national security. *Bulletin of the V. N. Karazin KhNU. Series: International Relations. Economics. Regional Studies. Tourism*, 9, 133–144. http://nbuv.gov.ua/UJRN/VKhMv_2019_9_19
- Zhyvko, Z. B., Slipa, O. Z., & Volnyh, A. I. (2015). Socio-economic security through the prism personnel security enterprise. *Scientific Bulletin of the Lviv State University of Internal Affairs. Economical series*, 2, 207–216. http://www.irbis-nbuv.gov.ua/cgi-bin/irbis_nbuv/cgiirbis_64.exe?Z21ID=&I21DBN=UJRN&P21DBN=UJRN&S21STN=1&S21REF=10&S21FMT=njuu_all&C21COM=S&S21CNR=20&S21P01=0&S21P02=0&S21COLORTERMS=0&S21P03=I&S21STR=%D0%9670364:%D0%95%D0%BA./2015/2
- Pulle, N., Sampath, P., Wijayaweera, D., Perera, S., Jayathilaka, R., & Dabare, U. (2026). Socio-Economic and Environmental Drivers of Food Security in Low-Income Countries: A 32-Year Cross-National Analysis for Sustainable Development. *Sustainable Development*, pp. 1–26. <https://doi.org/10.1002/sd.71081>
- Lukáč, J., Kudlová, Z., Kopčáková, J., & Gallo, P. (2025). Impact of Socio-Economic Factors on Digital Literacy and Security. *TEM Journal*, 14(1), 925–932. <https://www.cceol.com/search/article-detail?id=1320778>
- Khan, N., Furnell, S., Bada, M., Nurse, J.R.C., & Rand, M. (2025). Assessing Cyber Security Support for Small and Medium-Sized Enterprises. *HAISA: International Symposium on Human Aspects of Information Security and Assurance*. Part of the book series: IFIP Advances in Information and Communication Technology (IFIPAICT), 721, 148–162. Springer, Cham. https://doi.org/10.1007/978-3-031-72559-3_11
- Smal, T., Marín, M. J. A., & Myślińska-Wiepraw, J. (2025). Economic security of logistics enterprises in the face of global turbulence. *Systemy Logistyczne Wojsk*, 63, 127–150. <https://slw.wat.edu.pl/pdf-218684-139578?filename=Economic-security-of-logi.pdf>
- Grzelak, M., Owczarek, P., Stoica, R.-M., Voicu, D., & Vilău, R. (2024). Application of Logistic Regression to Analyze the Economic Efficiency of Vehicle Operation in Terms of the Financial Security of Enterprises. *Logistics*, 8(2). <https://doi.org/10.3390/logistics8020046>