



## ARTICLE

# Applying Marketing Strategic Planning Tools to Evaluate the Growth Potential of Ukraine's Dairy Industry

Oksana Senyshyn <sup>1\*</sup> , Oleksandr Kundytskyj <sup>2</sup> , Roman Khich <sup>3</sup> , Marta Goryn <sup>1</sup> , Natalia Chopko <sup>1</sup> ,  
Maryana Zamroz <sup>1</sup>

<sup>1</sup> Management Department, Ivan Franko National University of Lviv, 79000 Lviv, Ukraine

<sup>2</sup> Management Department, General Tadeush Kosciushko Land Forces Academy, 51-147 Wroclaw, Poland

<sup>3</sup> Marketing Department, Ivan Franko National University of Lviv, 79000 Lviv, Ukraine

## ABSTRACT

This study aims to examine the use of marketing tools for strategic planning to assess the development prospects of Ukraine's dairy industry, utilizing SWOT analysis, taxonomic analysis and scenario modelling methodologies. On the one hand, the author has chosen the SWOT-analysis method, the main goal of which is to determine the positioning of the dairy industry by evaluating its strengths and weaknesses, opportunities, and threats to select and identify the best strategies for its development. On the other hand, a comprehensive methodology for evaluating the dairy industry in Ukraine was used, specifically the taxonomic analysis and scenario modelling methods, which allowed the author to calculate the efficiency coefficient. As a result of applying strategic planning methodologies, the instability of the taxonomic indicator during 2003–2022 was demonstrated, which is caused by the following main reasons: military actions in Ukraine by the Russian aggressor, the noncompliance of certain types of dairy products with EU technical standards, among others. The practical value of scientific research is that it proposes the utilization of marketing strategies to assess the potential for development of the Ukrainian dairy industry, the combination of the SWOT method and taxonomy is particularly significant. Based on the SWOT analysis, a marketing strategy was proposed that specifically involved: a marketing innovation strategy, which would allow for the future enhancement of both design and packaging, as well as the reduction of the cost of dairy products.

### \*CORRESPONDING AUTHOR:

Oksana Senyshyn, Management Department, Ivan Franko National University of Lviv, 79000 Lviv, Ukraine; Email: [Okssenysyn@gmail.com](mailto:Okssenysyn@gmail.com)

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**Keywords:** Marketing Strategic Planning; Strategic Analysis; SWOT Analysis; Taxonomic Analysis; Marketing Strategy; Dairy Industry; Taxonomy Coefficient

## 1. Introduction

Strategic marketing planning is a modern modification of strategic management. At its core, strategic marketing planning is a decision-making process that enables effective marketing activities and the overall development of an enterprise. Despite extensive research and a significant body of published literature, the internal content of the planned strategic process, or its “anatomy” and marketing tools, remains a relatively unexplored area.

In a competitive market environment, dairy processing enterprises must not only define strategic goals and seek means to achieve them, choose a strategy for future development, but also form their competitive advantages and coordinate all areas of their activities to maintain or strengthen these advantages using specific strategic tools – marketing tools as components of the strategic planning methodology for the dairy industry.

Studying the state of Ukraine’s dairy processing industry through the lens of strategic marketing tools is a relevant topic. This relevance arises from the fact that the industry has a large number of producers, a wide assortment of products, high levels of competition, and significant marketing efforts made by market participants to retain their market share and conquer new markets. The enterprises in this sector face competition not only within the national market but also on the global stage.

An important component of the structural crisis in the current state of the national economy and its regions is the low level of knowledge in the methodology and methods of strategic marketing planning for dairy processing enterprises, along with the technological complexity of the national economy, which is influenced by several historical factors.

At the current stage of economic development, the objective prerequisites for the need for strategic marketing planning for dairy industry enterprises are as follows:

- The inability of market mechanisms to ensure

macroeconomic stability of the national economy and prevent cyclical fluctuations in production, gross income, and employment;

- A constant increase in the share of public consumption in overall consumption;
- The emergence of more complex forms of interaction between economic entities and entire sectors of the economy as a result of integration processes;
- The intensification of global issues (such as resource depletion and environmental degradation), which increases public interest in long-term development problems;
- The occurrence of emergencies (such as the war between Ukraine and the Russian aggressor, economic crises, and natural disasters) requires targeted efforts to mitigate the impact of these factors on societal development.

## 2. Review of Literature

The issue of strategic marketing planning, specifically the use of marketing tools in the activities of dairy industry enterprises, as well as the formation and implementation of marketing strategies, constantly attracts the attention of economists, both theorists and practitioners in the fields of management and marketing. Important questions regarding the methodology of strategic marketing management and planning have been covered in the works of foreign scholars such as I. Ansoff<sup>[1]</sup>, J. Day<sup>[2]</sup>, F. Kotler<sup>[3]</sup>, J.B. Quinn<sup>[4]</sup>, M. Mescon<sup>[5]</sup>, M. Porter<sup>[6]</sup>, A. Chandler<sup>[7]</sup>, and others. Among foreign researchers who have studied strategic marketing management in the dairy industry during times of crisis, notable names include Borawski, Dunn, Harper, & Pawlewicz<sup>[8]</sup>; Borawski, Pawlewicz, Parzonko, Harper, & Holden<sup>[9]</sup>; and Pouch & Trouve<sup>[10]</sup>. Their work has laid a theoretical and methodological foundation for this issue, resolving several methodological and applied aspects related to using strategic marketing planning to develop a competitive dairy market and improve the eco-

nomic mechanism of its functioning.

Although significant scholarly attention has been devoted to enhancing strategic tools within the framework of marketing planning, the comprehensive application of strategic analysis methodologies—particularly the integration of SWOT analysis with taxonomic analysis—remains underdeveloped. To date, there is a noticeable absence of internationally recognized academic publications that systematically propose an integrated approach to combining SWOT and taxonomic analysis within strategic or marketing analysis frameworks.

Nonetheless, several applied, theoretical, and methodological studies have indirectly explored this issue by integrating SWOT analysis with alternative strategic tools (e.g., PESTLE, TOWS, DEMATEL, and Balanced Scorecard) to enhance strategic diagnostics and improve the accuracy of strategic alternative selection. Notably, the work of G.I. Yevtushenko<sup>[11]</sup> proposes a model for improving the TOWS/SWOT methodology by incorporating various analytical methods, including taxonomic analysis, particularly in the context of brand equity management.

Despite targeted research efforts in strategic marketing planning within the dairy sector, the problem of methodologically justified selection and integration of strategic analysis tools—specifically the combination of SWOT and taxonomic analyses—remains unresolved. Current scholarly discourse lacks a critical examination of prior methodological limitations and fails to offer a structured algorithm for their integration. This gap underscores a significant deficiency in both the theoretical and practical dimensions of strategic marketing research in the dairy industry.

Examples of integrative approaches in strategic planning include Kaplan and Norton's incorporation of SWOT analysis into the Balanced Scorecard framework and the work of Italian scholars Claudio Baudino et al.<sup>[12]</sup>, who advocate for integrated planning methodologies (e.g., SWOT, TOWS, and LCA) to enhance production chains and sustainability in agriculture. A further example is provided by Uztürk and Büyüközkan<sup>[13]</sup>, who propose a hybrid strategic planning method combining SWOT, PESTLE, and DEMATEL analyses, utilizing a 2-

tuple linguistic DEMATEL model to identify interdependencies among strategic factors in Turkish agriculture.

The absence of a systematic methodology for integrating SWOT and taxonomic analysis reveals a clear methodological lacuna, thus reinforcing the necessity of developing a novel, comprehensive approach to strategic marketing planning, particularly within the Ukrainian dairy sector.

### 3. Research Methodology

To assess the effectiveness of the functioning and development of the dairy industry in Ukraine, we propose the use of two strategic planning methodologies: SWOT analysis and taxonomic analysis. These will serve as the main marketing tools for evaluating the performance and development of Ukraine's dairy industry.

The formation and implementation of marketing strategies for the development of industries and enterprises using the SWOT analysis methodology is the subject of research by a number of domestic scientists, in particular L.V. Balabanova<sup>[14]</sup>, D.I. Bernytska<sup>[15]</sup>, I.T. Kishchak<sup>[16]</sup>, O.A. Mekh<sup>[17]</sup>, M.G. Sayenko<sup>[18]</sup> and others. Thanks to these works, research is conducted on the directions of development of the agricultural sector using strategic marketing tools, the problem of choosing optimal strategies for the development of industries and their export potential, the problems and prospects of increasing the export potential of agro-food products and the dairy industry in particular, etc. However, our interest specifically concerns the use of strategic analysis methodologies to assess the effectiveness of the dairy industry in Ukraine in the context of enhancing international competitiveness.

Over the past 60 years, scholars and practitioners have used SWOT analysis in strategic planning to determine organizational positions and develop strategies. There have been attempts at comprehensive analyses of publications on SWOT analysis (e.g., Benzaghta, M. A., Elwalda, A., Mousa, M. M., Erkan, I., & Rahman, M.<sup>[19]</sup>), although these often focus on narrow applications. For example, S. Ghazinoory, M. Abdi, and M. Azadegan-Mehr<sup>[20]</sup> noted that SWOT analysis remains the most popular method among both theorists and prac-

tioners, with the agro-industrial complex being a leading application area (over 16 % of scientific publications). However, many recent scholarly works, such as those by M. Palazzo<sup>[21]</sup> and T. King<sup>[22]</sup>, critique SWOT analysis for potentially forming a limited view of the environment and using terminology that does not provide a clear understanding of factors affecting the organizational situation. Notably, researchers R.W. Puyt, F. Birger Lie, and C.P.M. Wilderom<sup>[23]</sup> highlight the need for more careful application of SWOT analysis in modern conditions, as the methodology is no longer used in the form originally envisioned by its creator, Robert Franklin Stewart.

The results presented herein, based on the application of SWOT analysis, derive from empirical data collected through a structured questionnaire survey of 30 respondents, comprising senior and mid-level managers from ten leading enterprises in Ukraine's dairy processing sector (LJSC "Terrafood", PrJSC "Bilotserkiv Dairy Plant", LLC "Lyustdorf", TDV "Yagotyn Butter Plant", PrJSC "Galichyna", PrJSC "Ternopil Dairy Plant", PrJSC "Prydniprovskiy Plant", PrJSC "Wimm-Bill-Dann Ukraine", LLC "Organic Milk", and PrJSC "Danone Kremenchuk"). Most of these enterprises rank among Ukraine's top ten dairy producers, according to the 2023 Ukrainian Business Award<sup>[24]</sup>.

The involvement of high-level industry experts ensures the credibility and practical relevance of the data collected. This methodological approach enables a nuanced assessment of the practical application of strategic analysis instruments, particularly SWOT analysis, within the domestic industrial context. Moreover, it facilitates the identification of critical factors influencing competitive positioning under conditions of internal instability and external stressors. These empirical findings provide a foundational basis for further research into the feasibility and implications of integrating SWOT analysis with quantitative methodologies, notably taxonomic analysis, to enhance the validity and robustness of strategic decision-making.

Another, equally interesting strategic analysis methodology, which is comprehensive and allows for a thorough evaluation of the effectiveness of the development of Ukraine's dairy industry through a system of

generalizing indicators, is taxonomic analysis.

Research into the use of taxonomic analysis for analyzing effectiveness and justifying economic phenomena, processes, and trends has been conducted by Ukrainian researchers such as S.A. Aivazian<sup>[25]</sup>, Z.I. Bazhaieva<sup>[25]</sup>, O.O. Kundytskyi<sup>[26]</sup>, V. Pliuta<sup>[27]</sup>, M.I. Repina<sup>[28]</sup>, O.S. Senyshyn<sup>[29, 30]</sup>, and others.

One of the early adopters of this special research methodology for aggregating taxonomic characteristics was Z. Hellwig<sup>[31]</sup>. The scholar proposed a taxonomic indicator that represents a synthetic measure formed from all the characteristics that describe the economic phenomenon under study.

The design of a system of general indicators for calculating the taxonomic coefficient, aimed at evaluating the operational efficiency of Ukraine's dairy sector, was guided by the principles of complexity, representativeness, and practical relevance. The selected indicators reflect not only the technological and production dimensions of the industry but also its economic efficiency and social value.

Specifically, these indicators include: the number of cows (a fundamental resource measure for milk production potential); the number of milk processing enterprises (indicative of institutional and infrastructural capacity); total milk production volumes (a composite measure of production intensity); milk processing volumes (representing industrial utilization of raw material potential); average annual milk yield per cow (a proxy for productivity and technological sophistication); profitability of milk production (a measure of financial sustainability and reinvestment capacity); production volumes of whole milk products (an output metric of market performance); and per capita milk consumption (reflecting domestic demand, nutritional adequacy, and food security).

To ensure the robustness and predictive accuracy of the taxonomic coefficient, we applied scenario modeling to project its future values, based on strategic assumptions aligned with the identified SWOT strategies. This integrative approach combines qualitative strategic insights with a quantitative evaluation of sectoral dynamics. By modeling three distinct strategic scenarios, we are able to assess potential developmental trajec-

ries of the industry and formulate evidence-based recommendations for optimal strategy selection.

The scenario modeling method—widely applied in strategic management, regional planning, agrarian economics, and systems analysis—serves here both as a verification tool for taxonomic projections and as an instrument for enhancing the interpretative power of SWOT-based strategic planning. Foundational contributions in this domain include Pierre Wack's early application of scenarios at Royal Dutch Shell<sup>[32]</sup> and subsequent work by Thomas J. Chermack et al.<sup>[33]</sup>, who highlight the cognitive and organizational benefits of combining SWOT with scenario planning.

Thus, the selected indicators allow for a holistic evaluation of the dairy industry, from input resources to socioeconomic outcomes. The proposed integration of scenario modeling with taxonomic analysis provides a theoretically grounded and practically relevant approach for informed strategic decision-making.

## 4. Results and Discussion

Based on the analysis conducted, it is worth noting that strategic marketing planning for the development of the dairy industry of Ukraine is based on a comprehensive toolkit that encompasses a holistic mechanism of interconnected elements, as well as an established methodology of strategic analysis.

These elements include the vision, mission, and goals for the development of the dairy sector, types and forms of planned activities for the domestic dairy industry's development, various methods and techniques for evaluating the industry, and organizational culture.

This scientific article will primarily discuss the methodologies for planning strategies in the domestic dairy industry's growth, specifically the SWOT method of analysis, through which a SWOT matrix is created for the purpose of evaluating the domestic dairy industry's functioning, and the method for calculating the taxonomic coefficient (an integrated method of taxonomic analysis), which is based on the assessment of the overall effectiveness of the dairy industry in Ukraine. It's important to note that the utilization of these methods will facilitate the assessment of the strategic importance of the dairy industry, the identification of assets and liabilities,

the identification of opportunities and hazards, the characterization of external forces affecting the dairy industry, and the drawing of definite conclusions.

### 4.1. The SWOT-Analysis Methodology

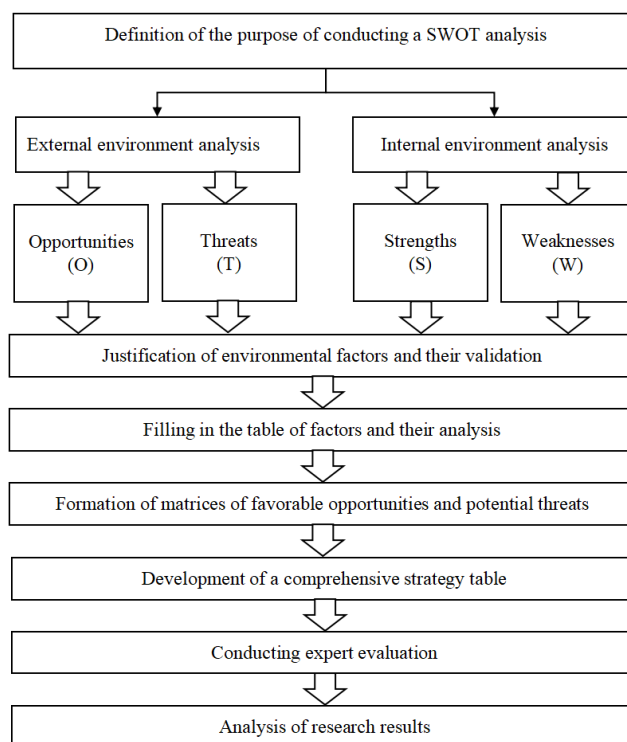
The key tool for forecasting the strategic development of an industry is the analysis of the internal and external environments of this industry. In particular, in our opinion, SWOT analysis is the most popular tool for strategic planning, which is based on determining the strengths and weaknesses of the object of analysis (Strengths and Weaknesses), as well as identifying market opportunities and potential threats (Opportunities and Threats).

It's important to recognize that conducting a SWOT analysis in this context is both important and necessary. The purpose of doing so is to identify the opportunities and threats associated with the development of Ukraine's dairy industry, which will lead to a stronger and more preventive nature. We will create a matrix that assesses the development potential of Ukraine's dairy industry, and will conduct a detailed analysis and description.

The process of conducting a SWOT analysis of the industry is a complex, multifaceted procedure that involves a series of sequential steps and concludes with an analysis of the results of proposed development strategies for the dairy industry as a whole (see **Figure 1**).

We will create a matrix of SWOTs for the dairy industry in Ukraine, this will identify the industry's primary advantages and disadvantages, as well as its potential threats and opportunities (see **Table 1**).

It is important to recognize that the makeup of the dairy market is based on three critical elements: the raw material market, the intermediary market, and the end consumer market. Taking into account the forms of ownership and the diversity of production entities, the infrastructure of the raw material market is represented by three main types of farms: agricultural enterprises, farms, and individual peasant farms. The analysis we conducted makes it possible to identify both strengths and risk areas that may complicate the achievement of the strategic goals of the industry. Particular attention should be paid to the analysis of potential opportunities, since it is thanks to them that the dairy industry can effectively counteract both internal weaknesses and external threats.



**Figure 1.** Schematic model of conducting a SWOT analysis of the dairy industry in Ukraine.

Source: developed by the author.

**Table 1.** SWOT analysis matrix of the dairy industry in Ukraine.

| Strengths                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Weaknesses                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>—The dairy market is growing dynamically, taking leading positions among the agro-industrial complex markets; at the same time, it is characterized by a high level of market research;</li> <li>—domestic dairy products are certified in accordance with EU requirements, which indicates their high quality and safety;</li> <li>—the active utilization of cutting-edge technology due to the implementation of state and non-state programs for the enhancement of the industry</li> <li>—dynamic development of the organic dairy segment;</li> <li>—numerous suppliers that ensure the functioning of the dairy industry;</li> <li>—developed market infrastructure consisting of intermediaries, state institutions, external consumers, etc.;</li> <li>—experience in implementing production processes both at the national and international levels;</li> <li>—relatively stable demand for dairy products;</li> <li>—existing brands with a wide range of products that are constantly modernized and updated;</li> <li>—developed product distribution system;</li> <li>—the presence of a significant reserve of labor resources among the rural population, which creates conditions for the formation of a relatively cheap labor force;</li> <li>—contributing to ensuring national food safety.</li> </ul> | <ul style="list-style-type: none"> <li>—Lack of modernization of the production capacities of the processing segment of the industry, which leads to low productivity;</li> <li>—the destruction of two important dairy facilities due to the loss of the production capacity of the Bashtansky cheese factory and the Kupyansky milk canning plant;</li> <li>—insufficient number of highly qualified personnel in the field of dairy production;</li> <li>—ineffective protectionist policy of the state towards dairy producers, in particular the imperfection of the import quota system and customs regulation;</li> <li>—lack of enterprises with a full cycle of processing of secondary waste of the dairy industry;</li> <li>—short shelf life of dairy products, which reduces its logistical and market attractiveness;</li> <li>—lack of development of agricultural cooperation, which could become the basis for the introduction of organic production;</li> <li>—low credit rating of the industry, which complicates access to sources of financing;</li> <li>—lack of a strategic planning system at dairy enterprises;</li> <li>—presence of strong foreign economic competitors, which significantly reduces the competitiveness of domestic products;</li> <li>—the insufficient degree of state support for the dairy industry;</li> <li>—non-compliance with the technical regulations of the European Union of certain types of dairy products.</li> </ul> |

Table 1. *Cont.*

| Opportunities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Threats                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>—Expansion of production areas within the dairy industry through its diversification;</li> <li>—provision of state support for development through subsidy mechanisms for both the traditional dairy industry and organic production;</li> <li>—the increased production volume of industrially produced dairy will be achieved by increasing the number of cattle or by increasing the production capacity;</li> <li>—help with the establishment of family-operated dairy farms and modern dairy cooperatives (MDCs);</li> <li>—implementation of tactics of deep processing of dairy raw materials at the enterprises of the industry, in particular ensuring the processing of at least 50% of primary products;</li> <li>—the utilization of marketing principles in the field of dairy farming and the production of organic dairy products;</li> <li>—increasing the efficiency of the processing industry by modernizing production facilities, enhancing environmental quality standards and improving the quality of raw milk through the implementation of state programs;</li> <li>—decrease in the tax burden on producers of environmentally friendly dairy products;</li> <li>—transformation of consumer preferences in favor of domestic dairy products;</li> <li>—increasing the popularity of dairy manufacturing enterprises;</li> <li>—strengthening the export potential of the industry;</li> <li>—a projected increase in milk production by almost 25% by 2030;</li> <li>—development of new international food markets;</li> <li>—implementation of a full cycle of secondary waste processing in the dairy complex</li> </ul> | <ul style="list-style-type: none"> <li>—Unstable economic and political environment as a result of military aggression by the Russian Federation;</li> <li>—reduction in production and supply of dairy raw materials;</li> <li>—intensification of inflationary processes in the economy;</li> <li>—decrease in the level of welfare of the population of Ukraine;</li> <li>—unreliability of statistical data on the basis of which most state and sectoral programs for the development of the dairy industry are formed, which complicates their implementation;</li> <li>—significant increase in prices for dairy products and reduction in the number of cattle due to active military operations on the territory of Ukraine;</li> <li>—strong competition from producers from the EU;</li> <li>—high rates of interest for loans to the agricultural sector, particularly for dairy companies;</li> <li>—the low capacity of the population to purchase, which encourages a reduction in the consumption of certified and organic dairy products;</li> <li>—an insufficient level of legal protection of consumers of dairy products.</li> </ul> |

Source: developed by the author.

The most important opportunities for growth in the industry are intended to be: diversified production activities within the dairy industry; state support for both traditional and organic production; increasing the number of cattle; developing modern family dairy farms and agricultural service cooperatives; implementation of a model of deep processing of dairy raw materials (at least 50 %); application of innovations in the field of marketing of dairy farming and organic production; as well as increasing the efficiency of the processing industry through modernization of enterprises.

To assess the impact of strategic external factors on the development of the dairy industry, it is advisable to identify key external factors, determine the degree of probability of their impact on the functioning of the industry, and also classify them by the nature of the impact—positive or negative (**Table 2**).

A comprehensive assessment of strategic oppor-

tunities and external threats is a critical component in forecasting the development prospects of Ukraine's dairy industry. Strategic planning must seek to exploit favourable external conditions while mitigating risks and neutralizing adverse influences.

Accordingly, this study classifies external environmental factors into two primary categories: opportunities (potentially positive influences) and threats (potentially negative influences). To support quantitative analysis, a 10-point evaluation scale was introduced, measuring both the likelihood and intensity of each factor's impact. Evaluation intervals are as follows: 7–10 (high probability/impact), 4–6 (moderate), and 1–3 (low).

This evaluative framework enhances the rigor of strategic planning by enabling structured environmental scanning and by serving as a foundational step in constructing strategic choice matrices. It also contributes to

increasing the reliability and analytical depth of subsequent strategy formulation processes.

Thus, the formed matrix of opportunities for the development of the domestic dairy industry demonstrates in the upper right sector of the matrix the most promising directions, namely, we identify them under numbers 4, 6, 9, 11, 12 and 13 (**Figure 2**). It is these elements that it is advisable to include in the final table of the SWOT analysis as potential guidelines for forming a strategy for the development of the industry.

In addition, it is necessary to analyze the likely threats (**Table 3**) and build a corresponding matrix of possible threats for the dairy industry of Ukraine (**Figure 3**).

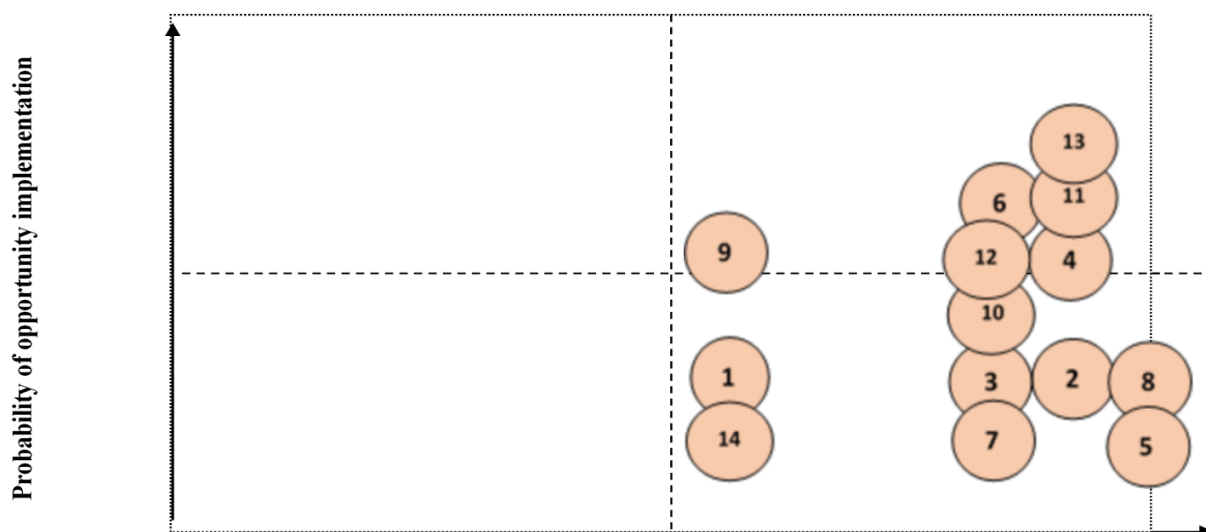
Having studied the potential threat graph demonstrated in **Figure 3**, we predict that additional research on the evolution of the dairy industry will be conducted alongside the potential dangers located in the upper right corner of the matrix (positions: 1, 3–5, 7–9).

To complete the strategic marketing analysis regarding the potential for development and viability of the Ukrainian dairy industry, it is necessary to demonstrate the connection between external factors (opportunities and threats) and the potential of the domestic industry (strengths and weaknesses). As a result, the following step is to create a table with the SO, ST, WO and WT strategies as illustrated in **Table 4**.

**Table 2.** The investigation of potential opportunities for the development of the dairy industry in Ukraine.

| №   | Factors (Elements)                                                                                                | Probability of Implementation |                 |            | Importance of Impact |                 |            |
|-----|-------------------------------------------------------------------------------------------------------------------|-------------------------------|-----------------|------------|----------------------|-----------------|------------|
|     |                                                                                                                   | High<br>7–10                  | Moderate<br>4–6 | Low<br>1–3 | High<br>7–10         | Moderate<br>4–6 | Low<br>1–3 |
| 1.  | Diversified production of products                                                                                |                               | 4               |            |                      | 6               |            |
| 2.  | Mechanisms of state assistance for the development of the industry, including organic production                  |                               | 4               |            | 9                    |                 |            |
| 3.  | Increasing the number of cows and dairy production for the development of industrial production                   |                               | 4               |            | 8                    |                 |            |
| 4.  | Advocating the concept of introducing modern-style dairy farms and agricultural service organizations (ASOs)      |                               | 6               |            | 9                    |                 |            |
| 5.  | Employing deep processing methods in industry                                                                     |                               |                 | 3          | 10                   |                 |            |
| 6.  | Application of marketing innovations in organic dairy production and livestock farming                            | 7                             |                 |            | 8                    |                 |            |
| 7.  | Modernization of processing enterprises as a direction for increasing the productivity of the processing industry |                               |                 | 3          | 8                    |                 |            |
| 8.  | Reducing the tax burden on producers of organic dairy products                                                    |                               | 4               |            | 10                   |                 |            |
| 9.  | Reforming consumer expectations through the promotion of domestic dairy food products                             |                               | 6               |            |                      | 6               |            |
| 10. | Increasing the popularity of the industry's investment                                                            |                               | 5               |            | 8                    |                 |            |
| 11. | Increasing the export potential of the industry                                                                   | 7                             |                 |            | 9                    |                 |            |
| 12. | Milk production is expected to increase by almost 25% by 2030                                                     |                               | 6               |            | 8                    |                 |            |
| 13. | Entering new international food markets                                                                           | 8                             |                 |            | 9                    |                 |            |
| 14. | Full cycle of recycling of secondary industrial waste                                                             |                               |                 | 3          |                      | 6               |            |

Source: developed by the author.



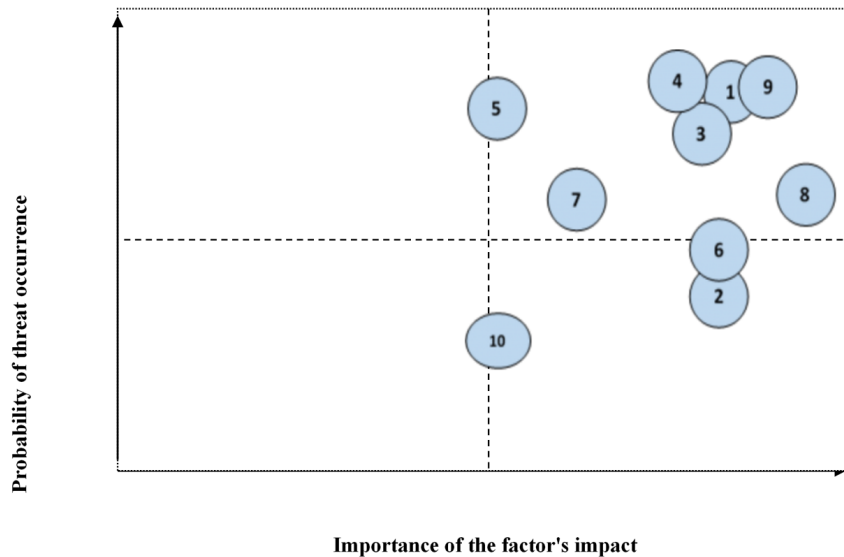
**Figure 2.** The matrix of beneficial opportunities for the expansion of the dairy industry in Ukraine.

Source: developed by the author.

**Table 3.** The assessment of possible dangers to the development of the domestic dairy industry.

| №   | Factors (Elements)                                                                                                                                                          | Probability of Implementation |                 |            | Importance of impact |                 |            |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-----------------|------------|----------------------|-----------------|------------|
|     |                                                                                                                                                                             | High<br>7–10                  | Moderate<br>4–6 | Low<br>1–3 | High<br>7–10         | Moderate<br>4–6 | Low<br>1–3 |
| 1.  | Russian military aggression leads to economic and political instability                                                                                                     | 8                             |                 |            | 9                    |                 |            |
| 2.  | Reduction in the creation and supply of dairy supplies                                                                                                                      |                               | 4               |            | 9                    |                 |            |
| 3.  | Growth of inflationary processes                                                                                                                                            | 7                             |                 |            | 8                    |                 |            |
| 4.  | Declining living standards of the Ukrainian population                                                                                                                      | 8                             |                 |            | 8                    |                 |            |
| 5.  | Many departmental and national strategies for the development of the dairy industry are based on inaccurate statistics, which results in these strategies being unrealistic | 8                             |                 |            |                      | 6               |            |
| 6.  | The hostilities led to a sharp increase in dairy prices and a decreasing number of dairy cows over time                                                                     |                               | 5               |            | 9                    |                 |            |
| 7.  | Intense rivalry from nearby Western powers                                                                                                                                  |                               | 6               |            | 7                    |                 |            |
| 8.  | Elevated interest rates for loans to the agricultural sector, and specifically to the dairy industry                                                                        |                               | 6               |            | 10                   |                 |            |
| 9.  | The low population's solvency is attributed to the high cost of certified and organic dairy products                                                                        |                               | 8               |            | 9                    |                 |            |
| 10. | Legal insecurity of the consumer of dairy products                                                                                                                          |                               |                 | 3          |                      | 6               |            |

Source: developed by the author.



**Figure 3.** Matrix of possible threats to the functioning of the dairy industry in Ukraine.

Source: developed by the author.

**Table 4.** A comprehensive SWOT analysis matrix illustrating the interplay between the external environment and the internal strengths and weaknesses of the dairy industry in Ukraine.

| SWOT-Analysis Components                                                                                                                                              | Opportunities in the External Environment (O)                                                    | Threats in the External Environment (T)                                                                                                                                                              |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                       | A. Establish family-operated dairy farms and modern-day agricultural service cooperatives        | a) Russian military aggression leads to economic and political instability                                                                                                                           |
|                                                                                                                                                                       | B. Using new marketing methods in the dairy industry and organic farming                         | b) The process of rising inflation                                                                                                                                                                   |
|                                                                                                                                                                       | C. Ukrainian consumers prefer domestic dairy products, leading to changing consumer expectations | c) The Ukrainian people's living standards decline                                                                                                                                                   |
|                                                                                                                                                                       | D. Expanding the industry's export potential                                                     | d) Many of the industry and government initiatives for the dairy sector are derived from inaccurate statistics, which results in these initiatives being unsuccessful                                |
|                                                                                                                                                                       | E. Increased milk production                                                                     | e) Fierce competition from neighboring Western countries                                                                                                                                             |
|                                                                                                                                                                       | F. Entering new foreign food markets                                                             | f) The agricultural sector, especially the dairy industry, has higher financing rates<br>g) Certified and organic dairy products are expensive, which leads to low purchasing power among the people |
| Strengths (S)                                                                                                                                                         | SO Strategies                                                                                    | ST Strategies                                                                                                                                                                                        |
| 1. The dairy products market is experiencing significant growth and leadership, supported by comprehensive market research and a deep understanding of consumer needs | Developing rural farmer cooperation                                                              | Low-cost production (non-organic dairy products) is growing rapidly                                                                                                                                  |

Table 4. *Cont.*

| Strengths (S)                                                                                                                                                                                                                                               | SO Strategies                                                                                                                                                                                                    | ST Strategies                                                                                                                                                                                                                  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2. The high quality of certified dairy products, as well as the compliance of domestic milk with the EU's safety and quality standards for raw milk, are both noted                                                                                         | Implementing an ESG approach and green washing measures to address future restructuring of organic dairy businesses                                                                                              | Increasing competition from neighboring Western countries                                                                                                                                                                      |
| 3. Using innovative technologies to promote industry development through implementation of government and non-government projects                                                                                                                           |                                                                                                                                                                                                                  | As household incomes fall, cheaper non-organic dairy production is promoted                                                                                                                                                    |
| 4. Organic dairy market develops rapidly                                                                                                                                                                                                                    | Relieve tax pressure on environmentally friendly dairy producers                                                                                                                                                 | The government and the public do not share the same priorities for organic dairy production and the dairy industry as a whole, which hinders the achievement of common goals such as the implementation of government projects |
| 5. There are a large number of suppliers in the industry                                                                                                                                                                                                    | A sustained growth in dairy production volumes                                                                                                                                                                   |                                                                                                                                                                                                                                |
| Strengths (S)                                                                                                                                                                                                                                               | SO Strategies                                                                                                                                                                                                    | ST Strategies                                                                                                                                                                                                                  |
| 6. The market is characterized by the presence of key structural elements, including intermediaries, government agencies, and external buyers                                                                                                               | The adoption of advanced production technologies and modern management practices                                                                                                                                 | Competition for qualified Ukrainian workers is fierce in neighboring Western countries                                                                                                                                         |
| 7. Existing experience (national and international) with production processes in the dairy industry                                                                                                                                                         | The sector is marked by expansion into new international food markets and the adoption of advanced production, marketing technologies, and management methodologies                                              | Certified organic dairy products are expensive, leading to lower demand and reduced food safety                                                                                                                                |
| 8.Consumer demand for dairy products has demonstrated continued stability over time                                                                                                                                                                         |                                                                                                                                                                                                                  |                                                                                                                                                                                                                                |
| 9. A diverse product portfolio, a well-established presence of multiple brands, and a commitment to continuous innovation and enhancement characterize the market                                                                                           | Emphasizing dairy brands that not only enhance export potential but, more importantly, ensure domestic food security                                                                                             |                                                                                                                                                                                                                                |
| 10. An extensive and fully developed distribution network                                                                                                                                                                                                   |                                                                                                                                                                                                                  |                                                                                                                                                                                                                                |
| 11. The high unemployment rate in rural areas provides a foundation for the availability of low-cost labor                                                                                                                                                  |                                                                                                                                                                                                                  |                                                                                                                                                                                                                                |
| 12. Guaranteeing national food security                                                                                                                                                                                                                     |                                                                                                                                                                                                                  |                                                                                                                                                                                                                                |
| Weaknesses (W)                                                                                                                                                                                                                                              | WO-Strategies<br>(Weaknesses-Opportunities)                                                                                                                                                                      | WT-Strategies<br>(Weaknesses-Threats)                                                                                                                                                                                          |
| 1. Outdated processing equipment leads to insufficient productivity in the processing stage                                                                                                                                                                 | The implementation of ESG approaches and initiatives addressing greenwashing in the forthcoming reform of the organic dairy industry will foster the development of an efficient dairy product processing system | Agricultural organizations face an inability to allocate capital to organic dairy farming due to the heightened risks associated with the ongoing conflict                                                                     |
| 2. The total number of dairy processing plants has decreased as a result of the closure and destruction of key facilities, including the Bashtansky Cheese Factory and the Kupyansk Dairy Plant, significantly impacting regional dairy production capacity |                                                                                                                                                                                                                  |                                                                                                                                                                                                                                |

Table 4. Cont.

| Weaknesses (W)                                                                                                             | WO-Strategies<br>(Weaknesses-Opportunities)                                                                                                                                                                                                          | WT-Strategies<br>(Weaknesses-Threats)                                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3. Insufficient level of workforce training in the dairy sector                                                            | The introduction of new manufacturing technologies and methods of management, particularly regarding employee motivation                                                                                                                             | The training of employees in the dairy industry (the creation of a center dedicated to the training of specialists in the dairy and food industries in general).<br>Protection of the domestic market (imposing quotas on dairy imports, and collecting customs tariffs when these are exceeded) |
| 4. The country lacks protectionist measures to secure a domestic dairy market                                              |                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                  |
| 5. There is a shortage of companies dedicated to maximizing the utilization of dairy by-products                           | The growing interest in investing in the dairy sector, driven by the adoption of advanced deep processing methods—where at least 50% of raw materials are processed—will contribute to strengthening the competitiveness of domestic dairy producers |                                                                                                                                                                                                                                                                                                  |
| 6. Dairy products have a short shelf life                                                                                  | Using foreign examples and the EU standards in creating innovative dairy products with a longer shelf life                                                                                                                                           |                                                                                                                                                                                                                                                                                                  |
| Strengths (S)                                                                                                              | SO Strategies                                                                                                                                                                                                                                        | ST Strategies                                                                                                                                                                                                                                                                                    |
| 7. Rural cooperatives are weakly developed as potential hubs for organic dairy production                                  | Adopting new production methods and methods of management that are strategic in nature, alongside the development of modern dairy service cooperatives (MDSC)                                                                                        | Admittedly, the price of organic dairy products is high, which has led to the population's inability to purchase these products. This issue will be exacerbated by the increasing popularity of Western countries in the certified organic sector                                                |
| 8. The dairy industry is currently challenged by a low credit rating                                                       | Encouraging foreign banks and credit institutions to invest in the dairy industry, alongside the enhancement of legislation governing dairy science, is essential for the sector's development                                                       |                                                                                                                                                                                                                                                                                                  |
| 9. Poor planning systems for the dairy industry's strategic direction                                                      | Implementing new manufacturing methods and strategies using marketing analysis techniques                                                                                                                                                            |                                                                                                                                                                                                                                                                                                  |
| 10. The presence of powerful financially associated foreign companies, diminishes the competitiveness of domestic products | Alleviating the fiscal burden on producers of environmentally sustainable dairy products, coupled with enhanced funding mechanisms and the provision of agricultural credit facilities, is imperative for the advancement of the industry            | The rapid increase in low-cost organic dairy production                                                                                                                                                                                                                                          |
| 11. Low level of government support for dairy industry development                                                         | Providing financial assistance to the dairy industry via both national and international initiatives                                                                                                                                                 |                                                                                                                                                                                                                                                                                                  |
| 12. Not following the specifications of the EU regarding dairy products                                                    | Implementing the entire dairy processing system                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                  |

Source: developed by the author.

Following a thorough analysis of the SWOT matrix, which examines the interplay between the external environment and the internal strengths and weaknesses affecting the development of the dairy industry—specifically the SO, ST, WO, and WT strategic directions—we have identified the following strategies as most appropriate:

1. **Marketing Innovation Strategy:** This strategy aims to drive enhancements in product design, packaging, sizing, and the variety of packaged goods. Additionally, it focuses on expanding the product range, with particular emphasis on organic dairy products.
2. **Innovative Consumer Growth Strategy:** This will take into account consumers of organic dairy products, especially early adopters of new products, eco-innovators, and consumers who value the environmental sustainability of dairy products and their packaging, as well as rational innovators and consumers seeking new quality products at an acceptable price.
3. **Cost-Reduction Strategy for Dairy and Organic Dairy Products.** This strategy aims to lower production costs to make dairy products more affordable. In light of the current wartime market conditions, many Ukrainian families may find it challenging to purchase organic dairy products regularly due to financial constraints. Implementing cost-cutting measures will help prevent price increases in the domestic organic dairy sector, thereby supporting broader consumer access.

The accelerated development of the Ukrainian

dairy sector, alongside the alignment of farms with EU quality standards, is essential for enhancing the competitiveness of dairy products within the industry.

## 4.2. The Taxonomy Analysis Method

To assess the effectiveness of the dairy industry in Ukraine, we propose using the taxonomy analysis method, which will enable a comprehensive and systematic selection of indicators that best characterize the dairy industry and, based on them, calculate the taxonomy coefficient to qualitatively evaluate and characterize the dairy industry in Ukraine as a whole.

The comprehensive development and functioning of the dairy industry in Ukraine are characterized by the following summary indicators (**Table 5**): the number of cows; the number of milk-processing enterprises; milk production volumes; milk processing volumes; the average annual milk yield per cow; the profitability of milk production; the production volumes of products from raw milk; and milk consumption per capita. The dynamics of these indicators are illustrated for the period 1990–2023.

The taxonomic indicator is determined using the classical method of taxonomic analysis (Senyshyn, Kundytshyj, et al.<sup>[26, 29]</sup>). This method creates an observation matrix, standardizes the values of the matrix elements, creates a vector of references, calculates the distance between each observation and the vector of references, and calculates the taxonomic coefficient.

To form the observation matrix, we will use Formula 1 and the generalizing indicators that characterize the effectiveness of the dairy industry in Ukraine from 1990 to 2023, as shown in **Table 5**.

**Table 5.** Key summary indicators characterizing the effectiveness of the dairy industry in Ukraine (1990–2023)<sup>[34–36]</sup>.

| Indicator                                                   | 1990   | 2003   | 2020   | 2021   | 2022   | 2023   |
|-------------------------------------------------------------|--------|--------|--------|--------|--------|--------|
| Number of Cows, (thousand cows)                             | 8378.2 | 4283.5 | 1673.0 | 1544.0 | 1352.8 | 1262.9 |
| Number of Milk-Processing Enterprises, units                | 643    | 441    | 192    | 168    | 120    | 112    |
| Milk Production Volumes, million tons                       | 24.5   | 13.7   | 9.3    | 8.7    | 7.8    | 7.4    |
| Milk Processing Volumes, million tons                       | 18.0   | 4.5    | 3.8    | 3.2    | 2.8    | 2.9    |
| Average Annual Milk Yield per Cow, kg                       | 2359   | 3487   | 5129   | 5155   | 5119   | 5476   |
| Profitability of Milk Production, %                         | 32.2   | 9.9    | 20.4   | 12.0   | 10.2   | 34.0   |
| Production Volumes of Products from Raw Milk, thousand tons | 6430   | 1230   | 1010   | 990    | 746    | 754    |
| Milk Consumption per Capita, kg                             | 373.0  | 220.0  | 201.9  | 201.5  | 174.2  | 200.0  |

$$X_{mn} = \begin{pmatrix} X_1 \\ X_2 \\ \dots \\ X_i \\ \dots \\ X_m \end{pmatrix} = \begin{pmatrix} x_{11} & x_{12} & x_{13} & \dots & x_{1j} & \dots & x_{1n} \\ x_{21} & x_{22} & x_{23} & \dots & x_{2j} & \dots & x_{2n} \\ \dots & \dots & \dots & \dots & \dots & \dots & \dots \\ x_{i1} & x_{i2} & x_{i3} & \dots & x_{ij} & \dots & x_{in} \\ \dots & \dots & \dots & \dots & \dots & \dots & \dots \\ x_{m1} & x_{m2} & x_{m3} & \dots & x_{mj} & \dots & x_{mn} \end{pmatrix} \quad (1)$$

Forming the observation matrix (X):

$$X = \begin{pmatrix} 8378,2 & 643 & 24,5 & 18,0 & 2359 & 32,2 & 6430 & 373,0 \\ 4283,5 & 441 & 13,7 & 4,5 & 3487 & 9,9 & 1230 & 220,0 \\ 1673,0 & 192 & 9,3 & 3,8 & 5129 & 20,4 & 1010 & 201,9 \\ 1544,0 & 168 & 8,7 & 3,2 & 5155 & 12,0 & 990 & 201,5 \\ 1352,8 & 120 & 7,8 & 2,8 & 5119 & 10,2 & 746 & 174,2 \\ 1262,9 & 112 & 7,4 & 2,9 & 5476 & 34,0 & 754 & 200,0 \end{pmatrix} \quad (2)$$

The creator of this method, V. Plyuta<sup>[27]</sup>, described the components of this matrix as indicators expressed in units of measurement. However, any indicator only reflects part of the studied category, while a comprehensive description involves the utilization of a system of indicators that, according to I. Repina<sup>[28]</sup>, have the following properties: 1) the comprehensiveness of their quantitative representation of phenomena; 2) the organic relationship between the individual indicators, which converts the group of indicators into a single description of a complex phenomenon or process. The definition of the research object and the establishment of its purpose are the primary criteria that define this system of metrics. However, following the taxonomy analysis algorithm, standardization is imperative for further calculations, as it allows the conversion of measurement units to a dimensionless scale within the range [0; 1], i.e., normalizing the values of indicators (Senyshyn et al.<sup>[29]</sup>; Senyshyn, Kundytskyj et al.<sup>[30]</sup>). The significance of this

step is that the process of standardization eliminates any discrepancies in the measurement of elements in the observation matrix, because the components of the measurement vector can be expressed in different (heterogeneous) units for each indicator. To accomplish this, we will determine the average values of each indicator (Table 6).

After calculating the average values of the general indicators that describe the effectiveness of the dairy industry in Ukraine from 1990 to 2023, we will standardize the values of the components of the matrix using the following formula:

$$Z_i = \frac{X_i}{\bar{X}_i} \quad (3)$$

where

$Z_i$ —standardized value of indicator  $i$ ;

$X_i$ —value of indicator  $i$  in the observation matrix;

$\bar{X}_i$ —average value of indicator  $i$ .

Standardized values matrix (Z):

**Table 6.** Average values of general indicators for calculating the taxonomic coefficient, which characterizes the effectiveness of the dairy industry in Ukraine from 1990 to 2023.

| Indicator                                                       | Average Value |
|-----------------------------------------------------------------|---------------|
| Number of cows (thousands)                                      | 3082.40       |
| Number of dairy processing enterprises (units)                  | 279.00        |
| Milk production volume (million tons)                           | 11.90         |
| Milk processing volume (million tons)                           | 5.87          |
| Average annual milk yield per cow (kg)                          | 4454.17       |
| Milk production profitability (%)                               | 19.78         |
| Production volume of products from raw milk (thousands of tons) | 1860.00       |
| Milk consumption per capita (kg)                                | 228.43        |

Source: calculated by the author.

$$Z = \begin{matrix} & 2.71808 & 2.30191 & 2.05882 & 3.06818 & 0.52962 & 1.62763 & 3.45699 & 1.63286 \\ & 1.38966 & 1.57876 & 1.15126 & 0.76705 & 0.78286 & 0.50042 & 0.66129 & 0.96308 \\ & 0.54276 & 0.68735 & 0.78151 & 0.64773 & 1.15151 & 1.03117 & 0.54301 & 0.88385 \\ & 0.50091 & 0.60143 & 0.73109 & 0.54545 & 1.15734 & 0.60657 & 0.53226 & 0.88210 \\ & 0.43888 & 0.42959 & 0.65546 & 0.47727 & 1.14926 & 0.51559 & 0.40108 & 0.76259 \\ & 0.40971 & 0.40095 & 0.62185 & 0.49432 & 1.22941 & 1.71862 & 0.40538 & 0.87553 \end{matrix} \quad (4)$$

The formation and construction of a reference vector, which involves categorizing all variables into stimulators and destimulators, is the next stage in the taxonomy analysis method algorithm. The basis for this categorization is the characteristic effect of each indicator on the level of the object under study. Indicators whose increase improves the overall evaluation of the effectiveness of the domestic dairy industry are categorized as stimulators; whereas destimulators are indicators that lead to the deterioration of functioning and development processes in the dairy sector.

According to the summary indicators in **Table 5**, the stimulators—indicators whose increase positively affects the overall effectiveness of the dairy industry in Ukraine, which include the number of cows, the number of dairy processing enterprises, milk production and processing volumes, the average annual milk yield per cow, profitability of production, and milk consumption per capita. Destimulators include the volume of production from non-fat milk.

The classification of indicators as either stimulators or destimulators is the foundation for creating the reference vector. To accomplish this, the greatest values of stimulators and the lowest values of destimulators from the entire study period must be chosen. The components of this vector have locations and are derived from the values of the indicators by using the following formula:

$$\begin{aligned} Z_{oi} &= \max Z_{ij}(\text{stimulator}) \\ Z_{oi} &= \min Z_{ij}(\text{destimulator}) \end{aligned} \quad (5)$$

The above provides us with the opportunity to calculate the coordinates of the reference vector ( $P_0$ ), which has the following coordinates:

$$P_0 = (2, 718; 32, 302; 2, 059; 3, 008; 31, 229; 31, 719; 0, 401; 1, 033) \quad (6)$$

Distinguishing the distance between each observation and the vector of references is the next step in the

procedure for calculating the taxonomic coefficient. This distance is determined using the following formula:

$$C_{i/o} = \sqrt{\sum_{j=1}^m (z_{ij} - z_{oj})^2} \quad (7)$$

where:

$Z_{ij}$  is the standardized value of the  $j$ -th indicator in the  $i$ -th period;

$Z_{oj}$  is the standardized value of the  $j$ -th indicator in the reference vector.

After determining the distance mentioned above, we will calculate the following metrics, which are necessary for the purposes of standardizing the distances (deviations) of each unit of the set from the “reference” point:

$$\bar{C}_o = \frac{1}{m} \sum_{i=1}^m C_{io} \quad (8)$$

$$S_o = \sqrt{\frac{1}{m} \sum (C_{io} - \bar{C}_o)^2} \quad (9)$$

$$C_o = \bar{C}_o + 2S_o \quad (10)$$

The obtained distances serve as the initial values used in the calculation of the taxonomy indicator:

$$d_i = \frac{C_{io}}{C_o} \quad (11)$$

The taxonomic indicator ( $K_i$ ) itself is determined by the following formula:

$$K_i = 1 - d_i \quad (12)$$

The values of the taxonomic coefficient calculated using the formula above, which demonstrates the efficiency of the dairy industry from 1990 to 2023, are presented in **Table 7**.

The features of the dynamic changes in the taxonomic indicator, which characterizes the overall efficiency of the dairy industry from 1990 to 2023, are shown in **Figure 4**. As seen from **Figure 4**, the taxonomic coefficient was unstable throughout the analysed

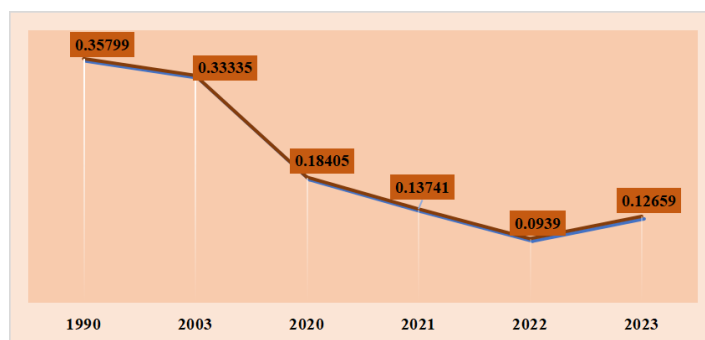
period. When analysing the calculated coefficients for 1990 and 2003, the values are among the highest, indicating a relatively good state of development in the domestic dairy industry and its indicators considered in the calculation of the taxonomic coefficient. The in-

terpretation of this indicator follows the logic that the closer the level of the respective component is to one, the better the situation in terms of the functioning and development of the system of indicators that make up the dairy industry in Ukraine.

**Table 7.** The values of the taxonomic coefficient, which characterize the overall efficiency of the dairy industry from 1990 to 2023.

| Year | The Taxonomic Coefficient $K_i$ | Interim Calculations |           |                  |         |         |
|------|---------------------------------|----------------------|-----------|------------------|---------|---------|
|      |                                 | $d_i$                | $C_{i/0}$ | $\overline{C}_o$ | $S_o$   | $C_o$   |
| 1990 | 0.35799                         | 0.64201              | 3.13634   |                  |         |         |
| 2003 | 0.33335                         | 0.66665              | 3.25672   |                  |         |         |
| 2020 | 0.18405                         | 0.81595              | 3.98607   | 3.88105          | 0.50208 | 4.88521 |
| 2021 | 0.13741                         | 0.86259              | 4.21393   |                  |         |         |
| 2022 | 0.09390                         | 0.90610              | 4.42647   |                  |         |         |
| 2023 | 0.12659                         | 0.87341              | 4.26678   |                  |         |         |

Source: calculated by the author.



**Figure 4.** Dynamics of the taxonomic coefficient, characterizing the overall efficiency of the dairy industry from 1990 to 2023.

Source: calculated by the author.

### 4.3. Scenario Modelling Methodology

To enhance the credibility of conclusions regarding developmental trends in Ukraine's dairy industry, we conducted scenario-based forecasting of taxonomic coefficient values under alternative strategic interventions proposed within the SWOT framework.

Three forecast scenarios were constructed to assess the strategic implications through 2029:

1. **Optimistic Scenario (SO-strategy):** Assumes implementation of an innovation-driven marketing strategy, diversification of product offerings, market stabilization, and increased state support. Expected outcomes include:
  - 10% increase in dairy cattle population;
  - 5–7% rise in production profitability;

- milk processing volume increase to 4.0 million tons;
- 15–20 kg increase in per capita milk consumption.

2. **Inertial Scenario:** Reflects continuity of current trends, characterized by wartime disruptions, inadequate government support, and technological stagnation. Projected outcomes include:

- 3% reduction in livestock;
- decline in dairy processing enterprises to ~100 units;
- 2–3% decrease in profitability;
- decline in per capita milk consumption to 180 kg.

3. **Pessimistic Scenario (WT-strategy):** Envisions a context of reform stagnation and increased import

dependency, leading to:

- domestic milk production falling below 7 million tons;
- profitability declining to  $\leq 10\%$ ;
- milk consumption dropping below 180 kg/person.

Forecast values of the taxonomic coefficient were calculated for each scenario using the exponential growth/decline model:

$$T_t = T_0 \times (1 + r)^t \quad (13)$$

where:

$T_t$  —forecasted taxonomic coefficient for year  $t$ ,

$T_0 = 0,12659$  (base value for 2023),

$r$  —annual growth rate (scenario-dependent),

$t$  —number of forecast years.

Growth rates and scenario conditions are detailed in **Table 8**.

The results of the scenario forecasting of the taxonomy coefficient for the dairy industry of Ukraine for 2024–2029 are presented in **Table 9** and depicted in **Figure 5**.

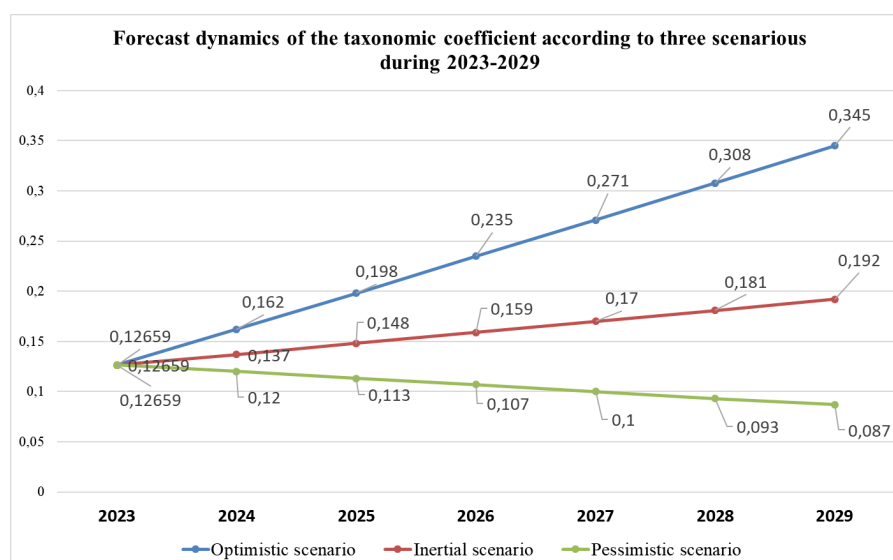
**Table 8.** Scenarios for forecasting the development of the dairy industry in Ukraine and their characteristics.

| Scenario         | Marking | Annual Rate (r, %) | Characteristics of Development Conditions                |
|------------------|---------|--------------------|----------------------------------------------------------|
| Optimistic       | S1      | +7% (0.07)         | Strategic intervention, investment, innovation           |
| Inertial (basic) | S2      | +3% (0.03)         | Maintaining the current trajectory of the dairy industry |
| Pessimistic      | S3      | −2% (−0.02)        | External crises, loss of markets, stagnation             |

**Table 9.** Forecast values of the taxonomy coefficient under three scenarios for the development of the dairy industry in Ukraine for 2024–2029.

| Year | Optimistic Scenario | Inertial (Basic) | Pessimistic Scenario |
|------|---------------------|------------------|----------------------|
| 2023 | 0.1266              | 0.1266           | 0.1266               |
| 2024 | 0.1355              | 0.1304           | 0.1241               |
| 2025 | 0.1449              | 0.1343           | 0.1216               |
| 2026 | 0.1551              | 0.1383           | 0.1191               |
| 2027 | 0.1659              | 0.1425           | 0.1168               |
| 2028 | 0.1775              | 0.1468           | 0.1144               |
| 2029 | 0.1900              | 0.1512           | 0.1121               |

Source: calculated by the author.



**Figure 5.** Dynamics of forecast values of the taxonomy coefficient according to three scenarios for the development of the dairy industry in Ukraine for 2024–2029.

Source: calculated by the author.

The forecast results reveal the following scenario-specific trends:

1. **Optimistic Scenario:** characterized by active government support, infrastructure development, technological innovation, and export growth, this scenario predicts a rise in the taxonomic coefficient from 0.1266 (2023) to 0.1900 (2029), signifying substantial improvement in sectoral performance.
2. **Inertial Scenario:** with continued inertia and limited strategic intervention, the coefficient is projected to increase to 0.1512 by 2029—indicative of stable but non-transformative growth.
3. **Pessimistic Scenario:** under adverse economic and geopolitical conditions, including reduced demand and market contraction, the coefficient is forecasted to decline to 0.1121, reflecting overall sectoral decline.

These findings demonstrate the dairy sector's sensitivity to strategic choices and external pressures, affirming the utility of scenario modeling in comparing alternative developmental pathways and guiding policy and managerial decisions in the agri-food sector.

Such an assessment allows for quantitatively comparing the effectiveness of alternative scenarios, substantiating the feasibility of implementing strategic interventions, and providing analytical support for management decisions in the agri-food sector. Thus, scenario forecasting of the integral taxonomic coefficient is an important tool for strategic planning in the dairy industry, which allows taking into account probable fluctuations in key factors and predicting the consequences of management decisions.

## 5. Conclusions

Our research on the prospects for the domestic dairy industry using taxonomic analysis confirms that, from 2003 to 2022, the taxonomic coefficient exhibited a downward trend, decreasing from a level of 0.33335 in 2003 to its lowest level of 0.0939 in 2022. Only in 2023 did the coefficient improve, reaching a value of 0.12659. The sharp decline in this coefficient in Ukraine from 2003 to 2022 can be attributed to the following

main causes and consequential links:

1. **Military actions:** The war in Ukraine, initiated by Russian aggression, led to the destruction and damage of dairy and dairy processing enterprises.
2. **Sharp increase in dairy prices:** The rise in prices for dairy products.
3. **Slow development of the processing sector:** The lack of development in the processing sector, which would allow the processing of 70–80% of milk.
4. **Incomplete implementation of state programs:** The insufficient execution of government initiatives aimed at supporting the operation and development of Ukraine's dairy industry.
5. **Reduction in livestock:** The decrease in cattle population.
6. **Non-compliance with EU technical standards:** Certain dairy products currently fail to meet the required EU technical specifications.

Based on forecasted taxonomic coefficient values under the three strategic scenarios, the following conclusions and recommendations are drawn:

- **Optimistic Scenario** reflects substantial potential for sectoral recovery and advancement under aggressive growth strategies. Recommended actions include expanded state support (subsidies, preferential credit), technological modernization, support for small and medium enterprises, and expansion into export markets.
- **Inertial Scenario** indicates slow, incremental progress in the absence of structural reforms. A stabilization strategy is advisable—emphasizing cost containment, preservation of existing capacities, and risk minimization through supply chain management.
- **Pessimistic Scenario** demonstrates declining sectoral performance due to wartime destruction, insufficient policy support, and market losses. A survival strategy is warranted—entailing cost reduction, consolidation, and a strategic pivot toward high-value markets.

The incorporation of these recommendations into policy and business practice is essential for developing

a responsive and adaptive strategic marketing planning system for Ukraine's dairy processing sector amid current economic and geopolitical instability.

## 6. Limitations and Future Research

The limitation of this study is primarily related to the author's subjective approach to assessing the efficiency of Ukraine's dairy industry. The proposed taxonomic methodology made it possible to comprehensively and systematically select a set of indicators that best characterize the dairy industry and, based on them, calculate the taxonomy coefficient. According to the authors, these are generalizing indicators, namely: the number of cows; the number of dairy processing enterprises; milk production volumes; milk processing volumes, average annual milk yield per cow; milk production profitability; production volumes of whole milk products; milk consumption per person, etc., which together synergistically describe the main trends in the development of the dairy industry in Ukraine. The development of the dairy business in the current conditions of war in Ukraine requires further research in this area and the use of additional coefficients and indicators to calculate the taxonomy coefficient, which will take into account the trends of the dairy industry in the post-war period.

## Author Contributions

Conceptualization, O.S. and R.K.; methodology, O.S. and O.K.; software, M.G. and N.C.; validation, R.K., M.Z. and O.S.; formal analysis, O.K. and M.G.; investigation, O.S. and R.K.; resources, M.Z. and O.S.; data curation, O.S. and N.C.; writing—original draft preparation, O.S., R.K. and M.Z.; writing—review and editing, O.S., M.G. and O.K.; visualization, N.C. and M.Z.; supervision, R.K.; project administration, O.S.; funding acquisition, O.S., M.G., M.Z., N.C. and R.K. All authors have read and agreed to the published version of the manuscript.

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## Institutional Review Board Statement

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## Informed Consent Statement

Not applicable.

## Data Availability Statement

The data confirming the results of this scientific study are publicly available on the website of the State Statistics Service of Ukraine (available from: <https://ukrstat.gov.ua>), and the results of the questionnaire are available from the corresponding author upon reasonable request.

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## Conflicts of interest

The authors declare no conflict of interest.

## References

- [1] Ansoff, I., 1999. Strategic Management. Ekonomika: Moscow, Russia. pp. 121-126.
- [2] Day, G.S., 1986. Analysis for Strategic Market Decisions. West Publishing: St Paul, MN, USA. pp. 211-220.
- [3] Kotler, F., Keller, K., 2006. Marketing management. Piter: Saint Petersburg, Russia. pp. 99-102.
- [4] Quinn, J.B., 1980. Strategies for Change: Logical Incrementalism. R. D. Irwin: Homewood, IL, United States. pp. 108-115.
- [5] Meskon, M., Al'bert, M., Hedouri, F., 1997. Fundamentals of management. Delo Publishing House: Moscow, Russia. pp. 180-201.
- [6] Porter Majkl, E., 2005. Competition strategy: methods of analysis of industries and competitors. Alpina Business Books: Moscow, Russia. pp. 301-320.
- [7] Chandler, A.D., 1962. Strategy and Structure. MIT Press: Cambridge, MA, USA. pp. 234-242.

- [8] Bórawski, P., Pawlewicz, A., Parzonko, A., et al., 2020. Factors Shaping Cow's Milk Production in the EU. Sustainability. 12(1), 420-422. DOI: <https://doi.org/10.3390/su12010420>
- [9] Bórawski, P., Dunn, J., Harper, J., et al., 2019. THE INTRA-EUROPEAN UNION TRADE OF MILK AND DAIRY PRODUCTS. Acta Scientiarum Polonorum. Oeconomia. 18(2), 13-23. DOI: <https://doi.org/10.22630/ASPE.2019.18.2.15>
- [10] Pouch, T., Trouvé, A., 2018. Deregulation and the crisis of dairy markets in Europe: facts for economic interpretation. Studies in Political Economy. 99(2), 194-212. DOI: <https://doi.org/10.1080/07078552.2018.1492216>
- [11] Yevtushenko H., 2013. Taxonomic analysis model for calculation of integrated indicators of brand equity. Economic analysis. 14(20), 176-182. Available from: <https://www.econa.org.ua/index.php/econa/article/view/241/94> (cited 21 July 2025). (in Ukrainian)
- [12] Baudino, C., Giuggioli, N.R., Briano, R., et al., 2017. Integrated Methodologies (SWOT, TOWS, LCA) for Improving Production Chains and Environmental Sustainability of Kiwifruit and Baby Kiwi in Italy. Sustainability. 9(9), 1621. DOI: <https://doi.org/10.3390/su9091621>
- [13] Uztürk, D., Büyüközkan, G., 2023. Strategic Analysis for Advancing Smart Agriculture with the Analytic SWOT/PESTLE Framework: A Case for Turkey. Agriculture. 13(12), 2275. DOI: <https://doi.org/10.3390/agriculture13122275>
- [14] Balabanova, L.V., 2001. SWOT-analysis is the basis of the formation of the company's marketing strategies. DonDUET: Donetsk, Ukraine. pp. 48-55. (in Ukrainian)
- [15] Bernytska, D.I., 2012. Strategic analysis of the enterprise's external environment by the PEST/STEP analysis method. Economic analysis, 11(2), 41-45. Available from: [https://econa.at.ua/Vypusk\\_11/EA-11-2.pdf](https://econa.at.ua/Vypusk_11/EA-11-2.pdf) (cited 22 April 2025).
- [16] Kishhak, I.T., Shevchuk, S.P., D'omina, V.M., 2014. SWOT analysis as a tool for developing a marketing strategy for an enterprise entering the foreign market. Bulletin of the Mykolaiv National University named after V.O. Sukhomlynskyj. 2, 70-74. (in Ukrainian)
- [17] Meh, O.A., 2012. Possibilities of improving the SWOT analysis methodology. Science and scientific studies. 1, 21-26. Available from: <https://nasu-periodicals.org.ua/index.php/sofs/issue/archive/2> (cited 07 July 2025). (in Ukrainian)
- [18] Sayenko, M.H., 2006. Enterprise strategy. Ekonomichna dumka: Ternopil', Ukraine. pp. 151-160.
- [19] Benzaghta, M.A., Elwalda, A., Mousa, M., et al., 2021. SWOT analysis applications: An integrative literature review. Journal of Global Business Insights. 6(1), 55-73. DOI: <https://doi.org/10.5038/2640-6489.6.1.1148>
- [20] Ghazinoory, S., Abdi, M., Azadegan-Mehr, M., 2011. SWOT METHODOLOGY: A STATE-OF-THE-ART REVIEW FOR THE PAST, A FRAMEWORK FOR THE FUTURE. Journal of Business Economics and Management. 12(1), 24-48. DOI: <https://doi.org/10.3846/16111699.2011.555358>
- [21] Palazzo, M., 2024. The SWOT Analysis: An Evolving Decision-Making Model. In: Rethinking Decision-Making Strategies and Tools: Emerging Research and Opportunities. Emerald Publishing Limited: Leeds, England. pp. 53-70. DOI: <https://doi.org/10.1108/978-1-83797-204-320241004>
- [22] King, T., Freyn, S., Morrison, J., 2023. SWOT analysis problems and solutions: Practitioners' feedback into the ongoing academic debate. Journal of Intelligence Studies in Business. 13(1), 30-42. DOI: <https://doi.org/10.37380/jisib.v13i1.989>
- [23] Puyt, R.W., Lie, F.B., Wilderom, C.P.M., 2023. The origins of SWOT analysis. Long Range Planning. 56(3), 102304. DOI: <https://doi.org/10.1016/j.lrp.2023.102304>
- [24] Slavgorodskyj, I., 2023. Ukrainian Business Award analyzed all milk producers and compiled a list of the best. Available from: <https://uba.top/milk/> (cited 07 April 2025). (in Ukrainian)
- [25] Ayvazyan, S., Bajaeva, Z., Staroverova, O., 1974. Classification of multivariate observations. Statistika: Moscow, Russia. pp. 67-81.
- [26] Senyshyn, O., Kundtytskyj, O., Zamroz, M., et al., 2021. State Regulation of Fixed Capital Reproduction in Ukraine Using Taxonomic Analysis Methodology. Management Theory and Studies for Rural Business and Infrastructure Development. 43(1), 38-51. DOI: <https://doi.org/10.15544/mts.2021.04>
- [27] Plyuta, V. (1989). Comparative Multivariate Analysis in Economic Research. Finansy i statistika: Moscow, Russia. pp. 57-70.
- [28] Rjepina, I.M., 2011. Taxonomic analysis of the efficiency of formation and use of enterprise assets. Formation of a market economy, 26, 440-457. (in Ukrainian)
- [29] Senyshyn, O.S., Urba, S.I., 2021. Using the taxonomic analysis method to assess the organic potential of Ukraine in the organic production system of European countries. Formuvannya rynkovoyi ekonomiky v Ukrayini. 45, 3-18. (in Ukrainian)
- [30] Senyshyn, O.S., Kundtytskyj, O.O., Mayovets, Ye.Yo., Horodniak, I.V., & Zhuk O.P., 2023. The organic potential of Ukraine in the system of organic production of the European countries. Management Theory and Studies for Rural Business and Infrastructure Development. Lithuania: Vytautas Mag-

- nus University, 45(1), 79-93. Available from: <https://ejournals.vdu.lt/index.php/mtsrbid/article/view/2971/2687> (cited 21 December 2024).
- [31] Hellwig, Z., 1968. Applying the taxonomic method to the typological division of countries based on their level of development and the structure of their qualified personnel. *Statistical Review*. 15(4), 307–326. (in Polish)
- [32] Wack, P., 1985. Scenarios: Uncharted Waters Ahead, *Harvard Business Review*. 63(5), 73–89. Available from: <https://hbr.org/1985/09/scenarios-uncharted-waters-ahead> (cited 19 July 2025).
- [33] Chermack, T.J., Lindsey, K., Grant, K., et al., 2019. The Effects of Scenario Planning on Perceptions of Organizational Agility *Journal of Futures Studies*. 24(1), 15–28. Available from: [https://jfsdigital.org/articles-and-essays/vol-24-no-1-september-2019/the-effects-of-scenario-planning-on-perceptions-of-organizational-agility/?utm\\_source=](https://jfsdigital.org/articles-and-essays/vol-24-no-1-september-2019/the-effects-of-scenario-planning-on-perceptions-of-organizational-agility/?utm_source=chatgpt.com) hatgpt.com (cited 11 June 2025).
- [34] Chagarovskyj, V., 2020. Dairy industry of Ukraine and its future in 10 years: problems, national development program and state support. Available from: <https://agropolit.com/blog/412-molochna-galuz-ukrayini-ta-yiyi-maybutnye-cherez-10-rokiv-problemi-natsionalna-programa-rozvitku-ta-derjavna-pidtrimk> (cited 6 August 2024). (in Ukrainian)
- [35] State Statistics Service of Ukraine, 2023. Agriculture of Ukraine for 2022: Statistical Collection. Available from: <https://ukrstat.gov.ua> (cited 10 July 2024). (in Ukrainian)
- [36] Visual Content Solution, Latifundist.com, 2023. Agrobusiness of Ukraine in 2022-2023: an information guide. Available from: [https://agribusinessinukraine.com/get\\_file/id/the-infographics-report-ukrainian-agribusiness-2023.pdf](https://agribusinessinukraine.com/get_file/id/the-infographics-report-ukrainian-agribusiness-2023.pdf) (cited 25 July 2024). (in Ukrainian).