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STRATEGIC POTENTIAL MANAGEMENT FUZZY MODEL

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The purpose of the research is to build a model for managing the strategic potential of an enterprise (SPE), taking into account the uncertainty of the internal and external environment in which enterprises operate. The main objective is to test the hypothesis that the strategic potential management model based on fuzzy data will improve the quality of SPE analysis, and, as a result, the effectiveness of management recommendations for increasing the level and efficiency of utilizing strategic potential of an enterprise. We utilized strategic management tools to implement the practical aspects of the research, in particular the methods of SWOT, PEST and multi-criteria analysis. Taking into account the uncertainties of the environment in which enterprises operate, we used methods of fuzzy set theory and fuzzy multicriteria analysis, in particular Fuzzy AHP and Fuzzy SAW methods that formed the basis of the study. Research findings confirmed that in order to effectively manage SPE in an uncertain weakly formalized environment, it's essential to design and apply an algorithm by means of fuzzy sets theory for the assessment of the SPE structural elements.

Keywords: *strategic potential of the enterprise, the structure of strategic potential, local potentials, management model, fuzzy set, Fuzzy AHP, Fuzzy SAW*

JEL Classification: C51, C81, D04, D81, M21

Formulation of an issue

The functioning of enterprises in the modern world occurs in extremely difficult conditions of instability, uncertainty of the external environment, greater competition, unpredictability of the raw material

base. In Ukraine, this is further aggravated by martial law, limited financial resources, significant reduction in labor, etc.

The capabilities of an enterprise in these conditions are determined not by maximum production volumes, but by its ability to anticipate potential changes in the internal and external environment, respond to these changes in a timely manner and determine strategic vectors for the development of the enterprise. For this purpose, the scientific literature (Ginevičius et al., 2012; Kuzior et al., 2022) uses the term "strategic potential of an enterprise" (SPE), defined as a system of interconnected resources, competencies and a set of opportunities for the effective and most complete satisfaction of the needs of target consumers, the creation of competitive advantages and, as a result, ensuring the successful development of the enterprise.

Amid instability of the external environment and increased competition, any enterprise striving to hold a strong position in the market must pay due attention to the establishment of principles and tools, diagnostics and better managing of the SPE. Efficient utilization of strategic potential allows the enterprise to quickly adapt to changes, function in realities of the present, and ensure its competitiveness and sustainable development.

Analysis of publications on the topic of the study

The need to use strategic management tools at enterprises was substantiated in their studies by scientists who made a significant contribution to the development of the theoretical and methodological foundations of strategic analysis and the development of management strategies. Thus, H. Ansoff, J. Lambin, M. Porter, A. Strickland and A. Thompson are the authors of the fundamental scientific works on strategic management. Thus, Ansoff (1979) is the founder of strategic management, who laid the basis for a systematic approach to the strategic planning and managing. Porter (1980, 2008) developed a model of five competitive forces that is essential tool for analyzing the competitive environment of an enterprise. The scientific work of Thompson and Strickland (2003) has become a classic textbook on strategic management, covering all aspects of developing and implementing strategies. The scientific works of Lambin (1996),

Zhylinska and Sviderska (2024) are devoted to strategic marketing as a component of strategic management.

David et al. (2015, 2016), Wheelen et al. (2018) developed the concepts of strategic management, adapting them to modern business conditions. Scientists focused on the practical use of strategic tools and methods in their studies. Grant (2021), Kotler et al. (2016) contributed to the development of the resource-based approach to strategy, considering innovation as a vital component of strategic management. Abraham (2012) and Hussey (1998, 1999) focused on the practical aspects of strategic planning and strategy implementation in their research, developing specific management tools and techniques for executive managing.

The studies of Fahey and Randall (2000), Fleisher and Bensoussan (2002) focused on the methods of strategic analysis and competitive intelligence, enabling companies to better assess their competitive environment. The scientific works of Johnson et al. (2008) and Lampel et al. (2014) are devoted to the research of the strategic management process, including the development, implementation and evaluation of strategies. Scientists address strategy in the context of organizational culture and structure.

The study of Leleur (2012) presents a modern approach to strategic managing, including the use of system thinking and quantitative methods in making strategic decisions in complex conditions. In the study by Hnatiienko et al. (2022), the list of directions for the organization's development is formed by experts taking into account the coefficients of their relative competence, and the resulting solution is determined using algorithms of evolutionary calculations or the nearest search. In the article by Zhylinska et al. (2017) the features of synergistic interaction of strategic business units of diversified companies are investigated and a simulation model for managing their interaction is proposed.

This constellation of scientists has made a significant contribution to the development of the theory and practice of strategic management from fundamental principles to modern methods of analysis and decision-making, demonstrating the evolution of strategic thinking from basic concepts to more complex integrated approaches that take into account globalization, technological changes and the growing complexity of the business environment.

However, as can be seen from the mentioned works, they are rather theoretical in nature, offering mainly expert approaches to managing the company's strategy. This is due to the fact that strategy is a poorly structured process that does not allow for a clear formalization of management processes at the enterprise, as well as the collection of the necessary amount of relevant statistical information to build econometric or machine learning models.

In such conditions, the most adequate mathematical tools for solving the problem of managing the strategic potential of an enterprise are the methods and models of the theory of fuzzy sets and fuzzy logic (Zadeh, 1965; Bellman & Zadeh, 1970; Kosko, 1993), which have the ability to take into account expert knowledge in the subject area, and are quite flexible and adequate to the presentation of initial information. Thus, an approach based on the use of fuzzy descriptions makes it possible to integrate and bring together all available heterogeneous data, including deterministic, statistical, linguistic and interval information on the enterprise and its activities, providing the ability of adapting models to real data. All this highlights the fuzzy-based tools as one of the most promising areas of the applied scientific research in strategic managing (regarding analysis, assessment, forecasting, simulation).

In this review of literary sources, we will focus on the studies devoted to the use of fuzzy approaches in the strategic management, in particular, strategic planning, analysis, and the foundation of the management strategies for enterprise activities.

For instance, Azarova and Antoniuk (2012) proposed a hierarchical neuro-fuzzy model for assessing the level of usage of the enterprise's strategic potential, where dozens of different quantitative and qualitative indicators are distributed across 8 subgroups, on the basis of which a resulting aggregated assessment is obtained. The process of constructing a complex target program to increase the level of usage of strategic potential is proposed, which allows determining the main areas of financing and implementing an effective distribution of the enterprise's limited resources. A similar neuro-fuzzy approach to strategic management of an enterprise with the aim of increasing its financial stability is implemented in the papers of Kozlovskyi et al. (2019) and Matviychuk (2010), where the mathematical models for

diagnosing bankruptcy of the enterprise on the basis of fuzzy logic were developed.

However, as can be seen from these papers, neuro-fuzzy models are particularly effective when there are relevant statistics available for their tuning. But as noted above, descriptive data on enterprise strategies that would allow to form the sufficient dataset for optimizing models essentially does not exist. In such conditions, it is rational to switch attention from fuzzy logic to fuzzy-set models.

Thus, Pap et al. (2000), Lin and Hsieh (2004), and Kasyanchuk (2016) describe the possible applications of the fuzzy sets theory in the strategic management of an enterprise for the analysis of portfolio matrices used for the development and selection of strategic alternatives in managing an enterprise's business portfolio. Nasab and Milani (2012) use Fuzzy TOPSIS (Technique for Order Preference by Similarity to Ideal Solution) to prioritize strategic alternatives, experimentally demonstrating its superiority over the conventional Quantitative Strategic Planning Matrix. Sagar et al. (2013) propose an approach for choosing the strategy based on the Fuzzy SAW (Simple Additive Weighting) method.

Jeyaraj et al. (2012) apply the Fuzzy ANP (Analytical Network Process) method on the example of a textile enterprise for selecting the best strategies, which demonstrated a number of advantages over SWOT analysis in experimental calculations. Kuzu (2020) demonstrates the selection of the university development strategy based on the Fuzzy AHP (Analytical Hierarchy Process), which was applied to the results of the SWOT analysis to strengthen and address the shortcomings of the classical approach. Similar study is presented in the paper by Friedrichsen et al. (2017) with a hybrid model built based on the SWOT analysis and Fuzzy AHP to determine competitive strategies in the field of education. The study of Ghazinoory et al. (2007) implements a similar fuzzy approach to identify priorities and highlight crucial strategies of the enterprise. Santos-Caballero and Lafuente (2017) propose to utilize an integral approach for the strategic analysis and enterprise strategies building based on the application of the Fuzzy-SWOT analysis and the Fuzzy-Delphi method.

Balan (2020a) develops a model for evaluating and selecting enterprise strategies based on the use of strategic diagnostic methods

and fuzzy multi-criteria evaluation methods, namely Fuzzy AHP and Fuzzy SAW. Balan (2022) introduces a model for stratification of enterprise strategies based on classical methods of enterprise strategy diagnostics (SWOT, PEST, competitive analysis methods, etc.), fuzzy methods of multi-criteria evaluation (Fuzzy SBWM (Simplified Best-Worst Method) and Fuzzy SAW) and fuzzy matrices.

The same author (Balan, 2020b) suggests a method for strategy building for an enterprise and its subdivisions by means of dynamic SPACE analysis. To determine the fuzzy values of the weighting coefficients of partial criteria, three calculation schemes have been developed using the algorithms of the Fuzzy AHP, the Fuzzy SMART (Simple Multi-Attribute Rating Technique), and the Fuzzy DEMATEL (Decision Making Trial and Evaluation Laboratory). To calculate fuzzy values for the level of each division according to generalized criteria, the Fuzzy SAW method is used, and in the case of significant differences in expert assessments, it is proposed to use the Fuzzy Delphi method to coordinate them.

Balan and Makarchenko (2023) developed a methodical approach to assessing the strategic potential of the dairy processing enterprise based on the use of strategic diagnostics tools, theory of fuzzy sets and fuzzy multi-criteria analysis (Fuzzy AHP and Fuzzy SAW methods).

The results of these studies, in particular (Balan and Makarchenko, 2023), became the foundation of this article research.

Despite the achievements of all respected scientists, a number of theoretical and practical issues associated with the application of the fuzzy modeling techniques in economics have been insufficiently researched or partly solved. In particular, the issues regarding improving the methodological support for the analysis, assessing and managing the strategic potential of an enterprise based on consideration the fuzziness and vagueness of the initial information have not been sufficiently studied.

The purpose of the article is to develop a methodological approach and a corresponding model for managing the strategic potential of the enterprise by means of the strategic analysis tools applying the methods of fuzzy multi-criteria analysis, as well as the practical implementation of the constructed model for the dairy processing enterprise.

Model for managing the enterprise's strategic potential

Based on the conducted analysis of approaches to managing the strategic potential of enterprises, we suggest a methodological approach to constructing a model, the main stages of which are shown in Fig. 1.

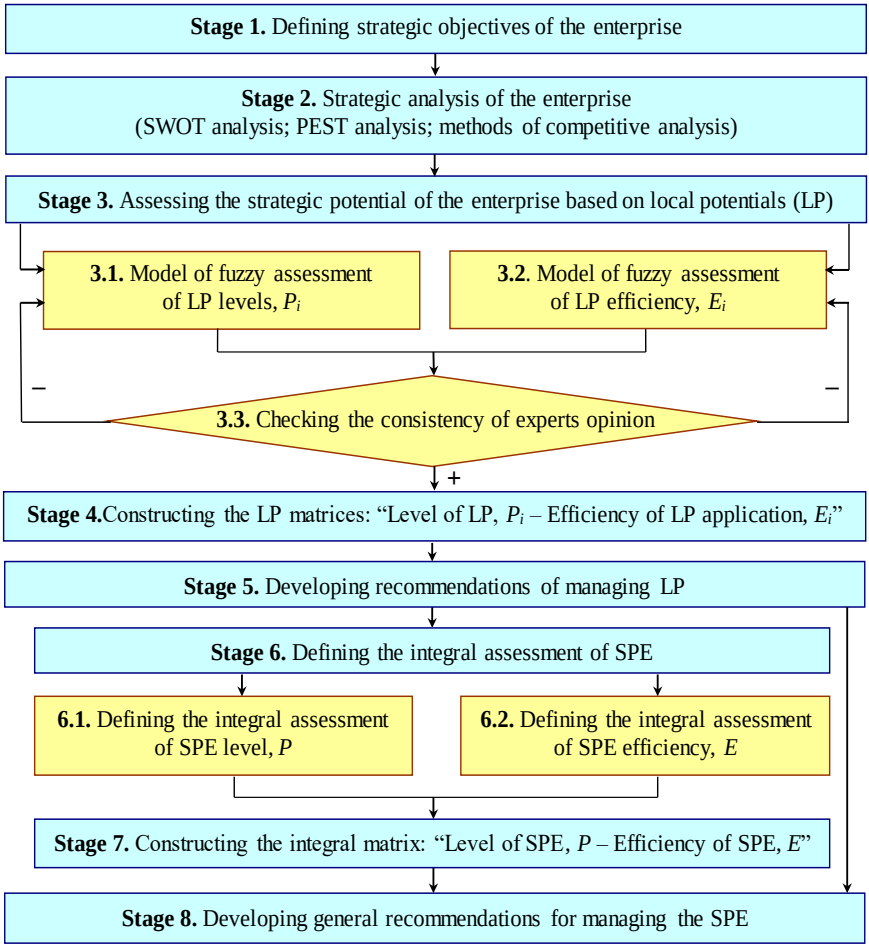

Fig. 1. SPE managing model

Practical implementation of the SPE management model for a dairy processing enterprise

Consider the stages of the methodological approach to constructing SPE management model, presented in Fig. 1, on the example of a dairy processing enterprise Private Joint Stock Company "Yuriya" (Ukraine, Cherkasy region).

Stage 1. The strategic objectives of the examined enterprise are as follows:

- holding the leading position in the domestic market of dairy producers;
- increasing product market share of up to 5%;
- significant expanding the dairy product range;
- increasing the share and range of the line of environmentally friendly products;
- expanding the geography and volume of the exported products to the EU;
- advancing manufacturing capabilities;
- re-equipping the cheese production workshop;
- investing in increasing the production of ultra-pasteurized milk;
- upgrading the managing system at all levels, etc.

Stage 2. After setting the objectives within the framework of the methodological approach to the SPE study (see Fig. 1), it is necessary to implement a strategic analysis of the dairy processing enterprise, in particular the internal environment (SWOT analysis, Tables 1 and 2) and the external environment (PEST analysis, Table 3).

A qualitative research of the internal potential of an enterprise shapes the vector of factors impacting the SPE that will be taken into consideration in managerial decisions. The result of the SWOT analysis application is an assessment (not numerical) of the actual position and strategic prospects of the enterprise, obtained through the study of its strengths and weaknesses, opportunities and threats. The use of this methodological toolkit makes it possible to identify the strategic directions of the enterprise's activities based on the selection of various combinations of indicators.

Table 1

SWOT ANALYSIS MATRIX FOR THE DAIRY PROCESSING ENTERPRISE

Strengths	**Weaknesses**
1. Environmentally friendly raw materials. 2. A wide range of products (more than 100 items). 3. Strong regional product demand. 4. High product quality. 5. Healthy diary product. 6. Export of some products. 7. The popularity of the "Voloshkove Pole" trademark. 8. Availability of the official website. 9. Strong advertising support.	1. Insufficient provision of production with advanced technologies. 2. Poor public awareness on the enterprise's products. 3. Challenges in the logistics network. 4. Unstable raw material base. 5. High cost of raw materials. 6. Staff turnover. 7. Low level of strategic planning within the market. 8. Low share of exported products.
Opportunities	**Threats**
1. Changing the geography of exports (increasing the share of exported products). 2. Quantitative increase in the product line. 3. Innovative component of production and management. 4. Using the latest technologies to improve the quality of dairy products. 5. Improving consumers' and business partners' awareness. 6. Increasing the share of the enterprise in the dairy market of Ukraine. 7. Obtaining government subsidies for the dairy industry.	1. Market volatility. 2. Strengthening competitors' position. 3. Changing legislation on the dairy enterprises. 4. Epidemics among cattle. 5. Decreasing the number of cows. 6. Increasing the prices for dairy raw materials. 7. Increasing customs barriers for the export of the enterprise's products. 8. Reducing the demand for dairy products. 9. High interest rates on loans for the agricultural sector. 10. Lack of working capital, in particular delays in payments from large retail chains.

On the basis of the conducted SWOT analysis, we can confidently assert that the studied enterprise holds a steady position in the dairy market. The enterprise's strength is an established positive image. It should be noted that the image is not a constant, so the enterprise always takes measures on its improvement. Ecological raw materials, a wide range of high-quality dairy products, and an acceptable pricing policy are the necessary conditions for maintaining a positive image of the enterprise. However, the instability of the raw material base (problems

with suppliers, quality of raw materials, price of whole milk), limited innovation flows at the enterprise, low organizational culture, and a staff turnover are the weaknesses of the enterprise. These issues pose a certain threat to weakening the competitive position of the researched enterprise comparing to other dairy processing enterprises.

In order to develop recommendations, we would like to introduce an expanded matrix of SWOT analysis of the enterprise, comprising of four fields: Strengths and Opportunities, Strengths and Threats, Weaknesses and Opportunities, Weaknesses and Threats), which is summarized in Table 2.

Table 2

EXPANDED SWOT ANALYSIS MATRIX

Strengths and Opportunities	**Strengths and Threats**
1. Using environmentally friendly and healthy products will allow us to expand the geography of exports and resist the competitors' aggressive strategy. 2. Popularity and a wide range of products will facilitate entry into new markets. 3. Improving information support is going to expand the circle of consumers.	1. Increasing competition will entail additional financial costs for the enterprise. 2. Competition, government policy, economic changes will impact the enterprise's strategy. 3. Popularity of the produce is going to protect against substitute goods and strengthen competitive advantages. 4. Using environmentally friendly raw materials and expanding the product range will affect the increase in prices for dairy raw materials.
Weaknesses and Opportunities	**Weaknesses and Threats**
1. Expanding the range of products will cause an increase in turnover costs and expenses. 2. Tracking the movement of products from the manufacturer to consumer will increase the enterprise's share in the Ukrainian dairy market. 3. Reducing costs while maintaining a constant level of the product prices and increasing the utilization of production capacities will increase the profit of the enterprise.	1. The emergence of the new competitors and high costs will worsen the enterprise's competitive position. 2. A decrease in the purchasing power of the population will reduce the demand for dairy products. 3. Unfavorable government policies and high tax rates may lead to negative consequences for the industry entity. 4. An outbreak of an epidemic among livestock and a reduction in livestock numbers will result in the use of the synthetic raw materials in the production process.

As follows from Tables 1 and 2, the studied enterprise has both strengths and weaknesses determined by its dairy processing activities. Competitors' policies pose a threat to the stability of the enterprise. The dairy market is highly competitive, which means that the enterprise finds itself in a state of a constant competitive struggle. There is a need to make maximum use of the enterprise's strengths to defeat competitors, expand the target audience on its regional market and outside, improving its strategic position in the dairy market.

Negative changes in the external environment are the major causes of destabilization of the strategic potential of the enterprise. The company, unfortunately, is unable to avoid the negative external impact, but it is possible and vital to reduce the effects by applying methods of partial elimination of threats or adaptation of the enterprise to negative realities (COVID, martial law, etc.). Therefore, there is a need to analyze the external environment of enterprise by means of PEST analysis.

The essence of PEST analysis is to identify macroenvironment factors influencing the results of an enterprise's operations, both current and predicted for the future. It is carried out on four vectors: Politics, Economy, Society, Technology. The results of the PEST analysis for the researched enterprise are presented in Table 3.

A direct consequence of applying the PEST analysis is the identification of the fundamental elements of the external environment that provide opportunities and threats for the enterprise during the forecast period. By analyzing the Table 3, the following conclusions can be drawn:

– changes in legislation have very different effects on the enterprise's activity. It's true that the positive changes enable the enterprise to unleash its potential for expanding the market, lines of business, etc. Unfortunately, the opposite is often the case;
– the threat of the terrorist attacks (martial law) poses a serious obstacle for the enterprise, since under such conditions it operates amid risks (disruption in logistics, changes in population demand, etc.);
– statistics show that the national dairy market is quite volatile, especially in military conditions;

Table 3

PEST ANALYSIS FOR THE DAIRY PROCESSING ENTERPRISE

Politics	Economy
1. Implementation of political reforms. 2. Legislative changes in the dairy industry. 3. Threat of the terrorist acts (martial law). 4. Government control of competition in the dairy industry. 5. The global trends in the development of the dairy industry. 6. Government program for developing the dairy cattle breeding.	1. Economic situation in Ukraine. 2. Increasing the level of inflation. 3. Volatility of the national currency exchange rate. 4. Revision of the state tax policy. 5. Changes in the level of income of the population. 6. Changes in enterprise costs (due to changes in utility tariffs, in particular costs for water supply, transportation and packaging of dairy products, etc.). 7. Mechanism of the government financial support for dairy producers.
Society	**Technologies**
1. Changes in basic social values. 2. Lifestyle changes. 3. Environmental health of the country. 4. Healthy lifestyle. 5. Demographic changes (including population structure, growth rates).	1. The emergence of new technologies. 2. Changes in the production mechanization. 3. Rapid implementation and adaptation of the new technologies in production. 4. Production of new dairy innovation-driven products (lactose-free, sugar-free, etc.).

– economic instability in the country threatens the stable operation of the enterprise;
– technological progress in dairy production will ensure an increase in the efficiency of the enterprise (this concerns technologies of production, packaging, storage of products, etc.);
– shift in values, in particular, the trend towards a healthy lifestyle, will have a positive impact on the dairy market development, since dairy products are rich in vitamins and minerals, and their consumption on a permanent basis is a necessary prerequisite for the normal life of people (special attention to the production of organic, lactose-free, sugar-free products);

– demographic changes, a decrease in population, partly due to the falling birth rate, partly due to the aggression of a neighboring state, leads to a lower demand for dairy products and a decrease in the number of consumers;
– mechanisms of government support for the European dairy industry, in contrast to domestic producers, make it practically impossible for the Ukrainian dairy processing enterprises to be competitive on the European market, which means that they lose in the competitive struggle. Thus, state financial support for innovative transformations in enterprises of the dairy industry is a necessary condition for ensuring the competitiveness of domestic dairy products in the European market;
– the unsatisfactory state of the environment poses a threat to dairy producers;
– the emergence of new technologies will make it possible to adopt the waste-free, bio- and nanotechnologies ensuring high-quality consumer properties of the dairy products, as well as to implement a system for their labelling and packaging with minimal negative impact on the ecological environment;
– the dynamics of the number of cows in Ukraine indicates its reduction, which in the short term may lead to a crisis in the food provision of the population with dairy products. A consequence of the reduction in the raw material base is the incomplete use of the production potential of the dairy industry.

An analysis of the influence of external and internal environmental factors on developing the strategic potential of a dairy processing enterprise under study indicates that it is quite competitive, however, its efficiency depends primarily on the raw material base (volume, price, cost of raw milk), as well as on consumer demand (volume, structure of consumer preferences).

On the basis of the conducted research, it was found that the enterprise follows a certain strategy in its activities, based on: a wide range of products, their constant updating, systematic launch of new products to the market, targeting consumers with different purchasing power, etc.

It is also worth mentioning that based on the results of the strategic analysis of the internal and external environment of the enterprise, we've conducted only a preliminary analysis and evaluation of the SPE, providing general recommendations.

Stage 3. It is important to note that quantitative assessment is the basic stage of the managing model, since it is necessary to regularly monitor the current capabilities of the enterprise at all stages of production and sales of products for managing its strategic potential.

The methodology of assessment by means of the local potentials is one of the most efficient techniques for the SPE testing. According to this methodology, the structure of the SPE can be conditionally regarded as an indefinite set of its local potentials, each of which is responsible for its own type of resources, creating together the prerequisites for the implementation of the strategic goals and effective directions for the functioning of the enterprise. Local potentials are determined by the corresponding components, the number and composition of which are not clearly defined.

The alternativeness in identifying the components of the structure of the industrial enterprise, suggested by scientists to obtain its integral assessment, is explained by the differences in the strategies of enterprises due to a number of factors: industry specifics, quantitative and qualitative personnel composition, financial potential, marketing position, etc. This, in particular, explains variations in the division of the SPE into varieties of local potentials by different scientists, as noted by Piatnytska et al. (2019).

We propose to take the list of local potentials and their components presented in the research of Balan and Makarchenko (2023) as a basis to study the strategic potential of a dairy processing enterprise.

In accordance with the developed methodological approach (see Fig. 1), the authors assessed the strategic potential of a dairy processing enterprise, taking into consideration the fuzziness of the data obtained from five experts, based on the use of tools for strategic diagnostics of the enterprise activities, the theory of fuzzy sets and fuzzy multi-criteria analysis, including Fuzzy AHP and Fuzzy SAW methods. The assessing methodology (Stage 3), that is, a step-by-step process of diagnosing the level of strategic potential by the example

of the dairy processing enterprise, is described in detail in the author's paper (Balan & Makarchenko, 2023).

Therefore, the following local potentials are obtained as a result of decomposition of the strategic potential of a dairy processing enterprise:

– P_1 – resource and raw material potential;
– P_2 – production potential;
– P_3 – advertising (marketing) potential;
– P_4 – financial and economic potential;
– P_5 – organizational and managerial potential;
– P_6 – innovation and investment potential;
– P_7 – personnel potential;
– P_8 – information potential;
– P_9 – ecological potential;
– P_{10} – export potential.

Note that this list can be adjusted in terms of the quantity and quality of local potentials and their components, taking into account the specifics of the dairy processing enterprise operation.

At this stage of the research, we carry out assessments in two parallel planes, namely the level of the SPE and the efficiency of the SPE application for all local potentials (see Fig. 1). Note that the SPE application efficiency is how fully and productively an enterprise utilizes its existing capabilities, resources and competencies to accomplish its goals. Therefore, the level of strategic potential means what's available in the enterprise, and the efficiency shows how well an enterprise utilizes it.

To take into account different levels of uncertainty ("refinement of the obtained fuzzy estimates"), the α-cut is used, which for a fuzzy number in triangular form $\tilde{u} = (a; b; c)$ is calculated using the formula $\tilde{u}_\alpha = (a(1-\alpha) + \alpha b; b; c(1-\alpha) + \alpha b)$ (Leekwijck & Kerre, 1999).

As we've mentioned, the methodology for assessing the level of SPE together with the calculations are presented in the authors' study (Balan & Makarchenko, 2023). The assessment results obtained in that article are given in Table 4.

Table 4

FUZZY VALUES OF LEVELS OF LOCAL POTENTIALS FOR DIFFERENT VALUES OF α

LP	$\alpha = 0$	$\alpha = 0.5$	$\alpha = 0.7$
P_1	(2.915; 3.916; 4.917)	(3.415; 3.916; 4.416)	(3.616; 3.916; 4.216)
P_2	(3.303; 4.303; 5.208)	(3.803; 4.303; 4.755)	(4.003; 4.303; 4.574)
P_3	(3.364; 4.365; 5.336)	(3.865; 4.365; 4.851)	(4.065; 4.365; 4.657)
P_4	(2.770; 3.769; 4.768)	(3.269; 3.769; 4.268)	(3.469; 3.769; 4.069)
P_5	(3.206; 4.206; 5.206)	(3.706; 4.206; 4.706)	(3.906; 4.206; 4.506)
P_6	(3.191; 4.192; 5.193)	(3.691; 4.192; 4.692)	(3.892; 4.192; 4.492)
P_7	(2.757; 3.756; 4.755)	(3.257; 3.756; 4.256)	(3.456; 3.756; 4.056)
P_8	(3.043; 4.043; 5.043)	(3.543; 4.043; 4.543)	(3.743; 4.043; 4.343)
P_9	(2.725; 3.726; 4.727)	(3.226; 3.726; 4.227)	(3.426; 3.726; 4.026)
P_{10}	(1.840; 2.840; 3.840)	(2.340; 2.840; 3.340)	(2.540; 2.840; 3.140)

Similarly, we are going to evaluate the efficiency of using SPE by means of fuzzy sets theory tools. To do this, we involve 5 experts who've studied the efficiency of the SPE. For the assessment we will use the following term set: T = {Extremely Low (EL); Very Low (VL); Low (L); Moderate (M); High (H); Very High (VH); Extremely High (EH)}. All terms of this set are defined by fuzzy triangular numbers on the interval [0; 6] with the corresponding membership functions (see Fig. 2): EL: (0; 0; 1); VL: (0; 1; 2); L: (1; 2; 3); M: (2; 3; 4); H: (3; 4; 5); VH: (4; 5; 6); EH: (5; 6; 6).

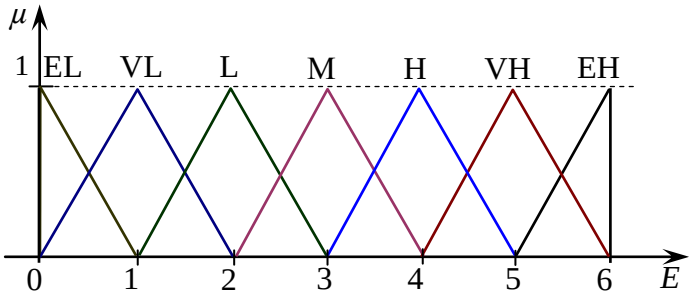

Fig. 2. Membership functions of the term set for assessing the level and efficiency of strategic alternatives

Linguistic expert assessments of the efficiency of local potentials are given in Table 5, and their fuzzy values for different levels of α-cut are shown in Table 6.

Table 5

LINGUISTIC ASSESSMENTS OF THE EFFICIENCY OF LOCAL POTENTIALS

Local potential	Efficiency of LP	Experts' assessments				
		$E_{(1)}$	$E_{(2)}$	$E_{(3)}$	$E_{(4)}$	$E_{(5)}$
P_1	E_1	VH	H	H	H	M
P_2	E_2	M	H	M	M	H
P_3	E_3	VH	H	H	M	H
P_4	E_4	H	M	M	M	L
P_5	E_5	M	M	M	M	L
P_6	E_6	M	M	L	M	M
P_7	E_7	M	M	L	M	L
P_8	E_8	H	M	H	H	H
P_9	E_9	H	M	H	M	H
P_{10}	E_{10}	M	L	L	M	M

Table 6

FUZZY VALUES OF THE EFFICIENCY OF LOCAL POTENTIALS FOR DIFFERENT VALUES OF α

Efficiency of LP	*Experts*					*Aggregated estimates*		
	$E_{(1)}$	$E_{(2)}$	$E_{(3)}$	$E_{(4)}$	$E_{(5)}$	$\alpha = 0$	$\alpha = 0.5$	$\alpha = 0.7$
E_1	(4;5;6)	(3;4;5)	(3;4;5)	(3;4;5)	(2;3;4)	(3.0;4.0;5.0)	(3.5;4.0;4.5)	(3.7;4.0;4.3)
E_2	(2;3;4)	(3;4;5)	(2;3;4)	(2;3;4)	(3;4;5)	(2.4;3.4;4.4)	(2.9;3.4;3.9)	(3.1;3.4;3.7)
E_3	(4;5;6)	(3;4;5)	(3;4;5)	(2;3;4)	(3;4;5)	(3.0;4.0;5.0)	(3.5;4.0;4.5)	(3.7;4.0;4.3)
E_4	(3;4;5)	(2;3;4)	(2;3;4)	(2;3;4)	(1;2;3)	(2.0;3.0;4.0)	(2.5;3.0;3.5)	(2.7;3.0;3.3)
E_5	(2;3;4)	(2;3;4)	(2;3;4)	(2;3;4)	(1;2;3)	(1.8;2.8;3.8)	(2.3;2.8;3.3)	(2.5;2.8;3.1)
E_6	(2;3;4)	(2;3;4)	(1;2;3)	(2;3;4)	(2;3;4)	(1.8;2.8;3.8)	(2.3;2.8;3.3)	(2.5;2.8;3.1)
E_7	(2;3;4)	(2;3;4)	(1;2;3)	(2;3;4)	(1;2;3)	(1.6;2.6;3.6)	(2.1;2.6;3.1)	(2.3;2.6;2.9)
E_8	(3;4;5)	(2;3;4)	(3;4;5)	(3;4;5)	(3;4;5)	(2.8;3.8;4.8)	(3.3;3.8;4.3)	(3.5;3.8;4.1)
E_9	(3;4;5)	(2;3;4)	(3;4;5)	(2;3;4)	(3;4;5)	(2.6;3.6;4.6)	(3.1;3.6;4.1)	(3.3;3.6;3.9)
E_{10}	(2;3;4)	(1;2;3)	(1;2;3)	(2;3;4)	(2;3;4)	(1.6;2.6;3.6)	(2.1;2.6;3.1)	(2.3;2.6;2.9)

Stage 4. Let us build the matrices of the local potentials. For this purpose, we introduce two coordinate axes: the axis of level of local potential P_i, and the axis of the corresponding local potential efficiency E_i. The matrix is divided into 9 areas: L–L, L–M, L–H, M–L, M–M, M–H, H–L, H–M, H–H.

Note that we apply the following fuzzy scale on the axes*:* low – L: (0; 1; 2), moderate – M: (2; 3; 4), and high – H: (4; 5; 6) levels of the corresponding indicator. We do not use intermediate levels for the simplification.

The initial data for the construction of the specified matrices include the calculated values of the levels and efficiency of local potentials for the studied dairy processing enterprise (Tables 4 and 6). We construct 10 matrices "Level of local potential P_i – local potential efficiency E_i", i = 1, …, 10, for the case of α = 0.5, which can be seen in Figs. 3-12.

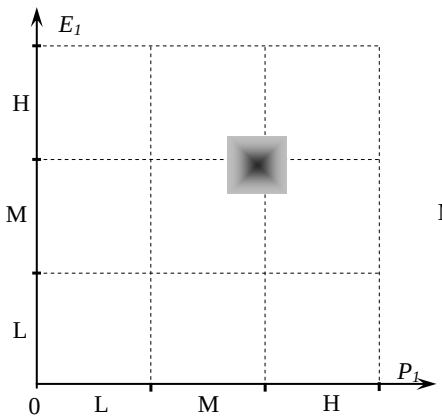

Fig. 3. Matrix "Level – Efficiency" of 1st LP

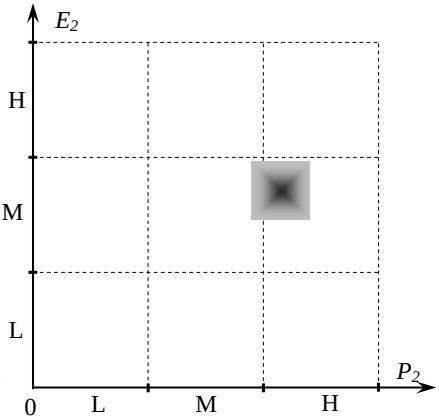

Fig. 4. Matrix "Level – Efficiency" of 2nd LP

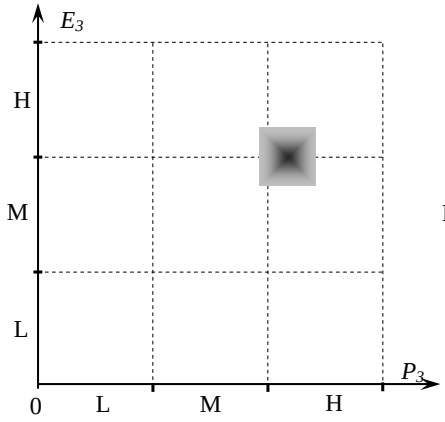

Fig. 5. Matrix "Level – Efficiency" of 3rd LP

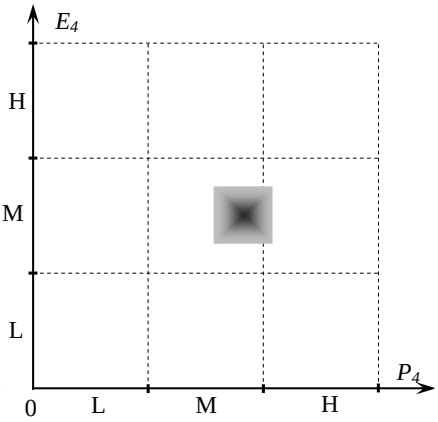

Fig. 6. Matrix "Level – Efficiency" of 4th LP

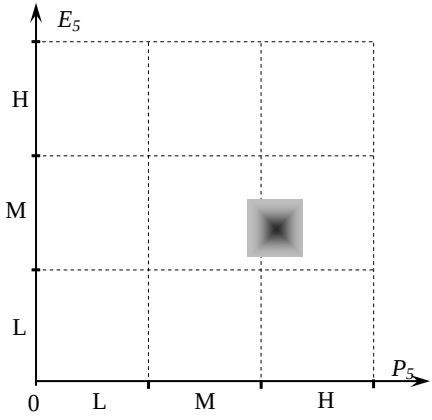

Fig. 7. Matrix "Level – Efficiency" of 5th LP

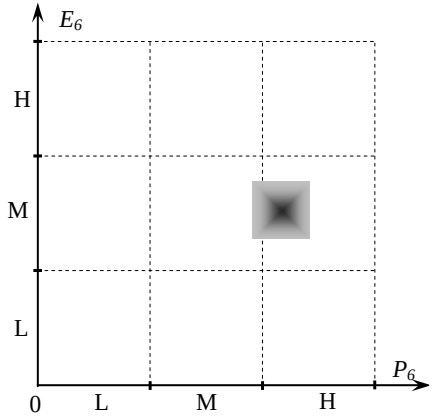

Fig. 8. Matrix "Level – Efficiency" of 6th LP

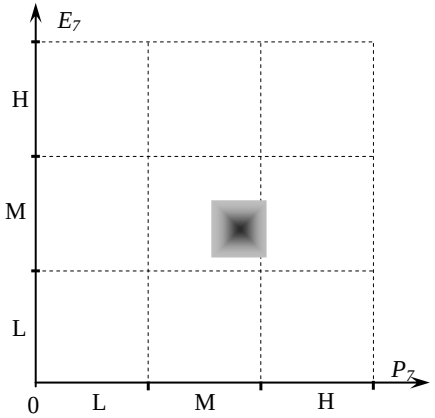

Fig. 9. Matrix "Level – Efficiency" of 7th LP

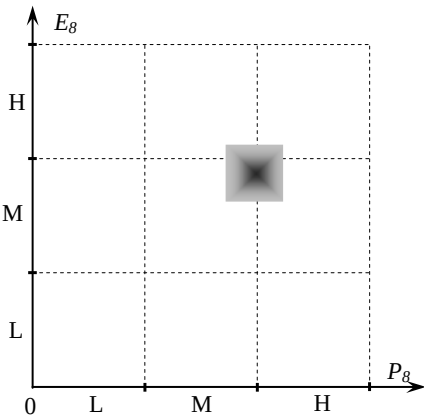

Fig. 10. Matrix "Level – Efficiency" of 8th LP

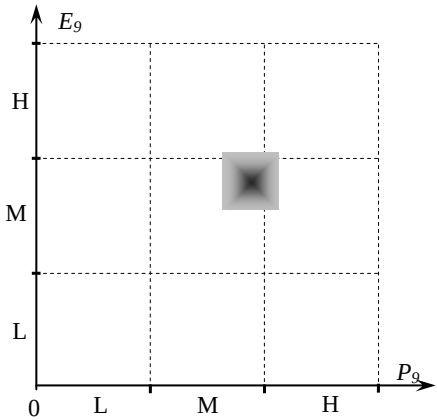

Fig. 11. Matrix "Level – Efficiency" of 9th LP

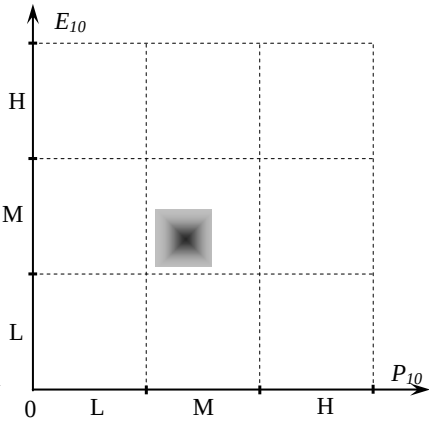

Fig. 12. Matrix "Level – Efficiency" of 10th LP

Stage 5. The development of the strategic guidelines for managing the local potentials is based on taking into consideration the fuzzy assessment and localization (positioning) of the researched enterprise in the relevant area (or several areas) of the local potential matrices (Figs. 3-12). Note that that the localization of the enterprise (depicted as a square) at the intersection of several areas complicates the

development of managing recommendations. The extent to which the strategy is applied corresponds to the size of the square (enterprise) at the intersection of the relevant areas.

Therefore, the guidelines for managing the enterprise's local potentials are built at this stage. It should be mentioned that depending on the position of the enterprise on the matrix of the corresponding local potential, that is, which area (of the selected 9) it falls into, the priority managing recommendations are developed.

As an example, we shall now consider building of strategies for managing the resource and raw material local potential P_1. We analyze the localization of the studied enterprise on the corresponding matrix (see Fig. 3): it is placed almost evenly (considering the position of the square) at the intersection of four areas: M–M, M–H, H–M and H–H. This means that the dairy processing enterprise holds a fairly stable position (above the average level) in relation to its resource and raw material potential. We should mention that this applies both to the specified level of potential and to its efficiency. The managing vector is quite efficient in this regard. We suggest managing measures regarding its resource and raw material potential (Table 7) for its optimization with the purpose of the enterprise localization in the H–H area.

The developed managing recommendations for the enterprise under study, taking into account the position of the enterprise relative to all local potentials on the constructed matrices, are shown in the Table 7.

Table 7

LOCAL POTENTIALS' MANAGING GUIDELINES

LP	Managing guidelines
P_1	– optimization of the number of dairy raw materials' suppliers (quantitative and qualitative aspects); – quality control of raw materials; – efficient distribution and redistribution of resources among structural divisions of the enterprise; – reduction of stocks; – ensuring efficient storage utilization
P_2	– ensuring efficient utilization of production facilities; – infrastructure improvements; – ensuring an appropriate level of equipment, production technologies and production capacity

P_3	– studying consumer demand for the dairy products; – analyzing and meeting the needs of the target consumer groups; – increasing the efficiency of the retail network; – product line optimization; – expanding the product range (organic, lactose-free, sugar-free); – testing new product concepts; – staying ahead of competitors when entering new markets (in terms of geography and product range)
P_4	– developing an assessment and analytical system for analyzing the financial and economic condition of an enterprise; – reforming the loan policy at an enterprise
P_5	– improving the level of management at all levels; – making the organizational structure of an enterprise better; – enhancing the planning system; – introducing a differentiated wage system; – wider use of the enterprise controlling system
P_6	– ensuring a high level of investment attractiveness of the enterprise; – accumulating the required volume of investment resources; – effective input of investment resources and their rational managing; – ensuring the necessary conditions for implementing competitive ideas at all stages of production, storage and sale of dairy products; – investments in increasing the production of ultra-pasteurized milk
P_7	– developing a system for diagnosing organizational culture at the enterprise; – increasing the level of personnel qualifications, including management assets; – improving working conditions; – introducing material and non-material incentives
P_8	– improving information technologies at the enterprise; – involving a larger array of information resources; – enhancing information quality control (completeness, adequacy, etc.)
P_9	– applying environmental protection technologies in production; – improving waste recycling technology; – increasing the share of the organic products in the total volume of manufactured goods
P_{10}	– increasing the share of exported products; – reconsidering the geography of export of manufactured products (towards the EU); – expanding the range of exported products; – significantly increasing the share in the export of goods, in particular butter, cheese, etc.

Stage 6. The integral assessment of the SPE level is calculated in (Balan and Makarchenko, 2023) by means of the Fuzzy SAW method. Similarly, we determine the integral assessment of the SPE efficiency, taking into account the relevant weighting coefficients. The findings are shown in Table 8.

Table 8

FUZZY VALUES OF THE INTEGRAL ASSESSMENT OF THE LEVEL AND EFFICIENCY OF SPE FOR DIFFERENT VALUES OF α

SPE	$\alpha = 0$	$\alpha = 0.5$	$\alpha = 0.7$
P	(3.034; 4.035; 5.022)	(3.534; 4.035; 4.522)	(3.735; 4.035; 4.331)
E	(2.360; 3.360; 4.361)	(2.860; 3.360; 3.861)	(3.060; 3.360; 3.661)

Stage 7. Based on the calculated fuzzy values of integral assessments of the level and efficiency of the SPE for the studied dairy processing enterprise (Table 8 for α = 0.5), we will construct an integral SPE managing matrix (Fig. 13).

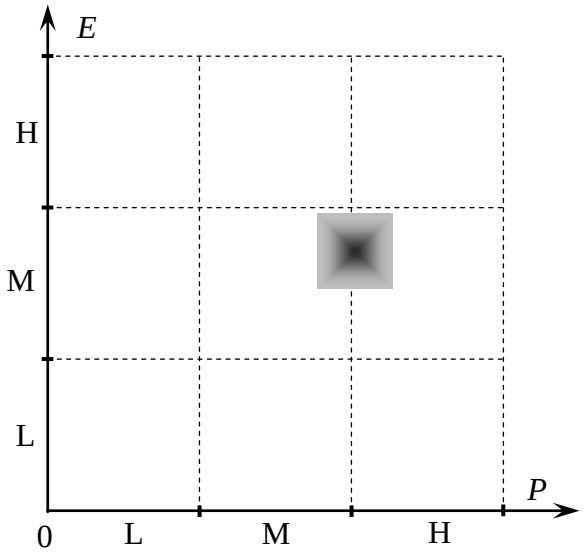

Fig. 13. Integral matrix "Level of SPE, *P* – Efficiency of SPE, *E*"

Stage 8. The final stage of constructing the SPE managing model consists of developing general recommendations for SPE management, based on guidelines for managing the local potentials of the enterprise, considering its position on the integral matrix (Fig. 13). The analysis of the integral matrix constructed for the researched enterprise leads to the following conclusions:

– the enterprise is localized in two areas of the integral matrix: M–M, M–H;
– it is placed evenly with respect to these areas;
– the assessment of the SPE level is above average;
– the SPE efficiency is at an average level.

Given the findings on the integral matrix and recommendations for managing local potentials (Table 7), we provide general guidance for managing the strategic potential of the analyzed enterprise:

– tightening control over suppliers of the raw materials;
– market segmentation to strengthen competitive position;
– changes in the geography and increase in the share of the exported dairy products, especially deep processed ones;
– investments in projects having an impact on the competitive position, in particular, in increasing the production of ultra-pasteurized milk;
– conglomerate diversification, which implies release of new types of products;
– focusing on eco-friendliness of the dairy products;
– optimizing the marketing program for product sales aimed at the consumer needs;
– attracting investments oriented toward improving the production process at all stages;
– professional development of the managing personnel;
– implementation of a continuous training system;
– raising the level of organizational culture at the enterprise;
– more efficient use of all resources of the enterprise, etc.

Conclusions and prospects for further research

Utilizing quite a powerful toolkit of economic and mathematical modelling based on the theory of fuzzy sets and fuzzy logic is the modern trend in the methodology of strategic managing the enterprises. This methodological toolkit is applied in this study to develop a model for managing strategic potential using the example of dairy processing enterprise with a detailed description of each stage of the proposed SPE managing model.

A hierarchy of the problem situation is constructed, where local potentials of the SPE are identified and splitted into components by decomposition. Diagnostics of local potentials is carried out with the involvement of 5 experts to assess the level of SPE and SPE efficiency. To assess the SPE by the components of local potentials, expert evaluations are used based on the 7-level term set with their conversion into triangular fuzzy numbers. Matrices of local potentials are built on their basis: "Level of local potential, P_i – Efficiency of local potential application, E_i".

Considering the position of the studied enterprise on the relevant local matrix, priority management measures are developed to strengthen corresponding local potential. An integrated SPE matrix is built, on the basis of which and taking into consideration the already developed local management measures, general managing recommendations for SPE optimization are introduced.

The Fuzzy SAW method is applied to calculate estimates of the level and efficiency of local potentials and the strategic potential of the enterprise. A consequence of applying the suggested methodical approach is the identification of the strengths and weaknesses of the enterprise, the development of an effective mechanism for activating its potential and improving the competitive position of the enterprise on the dairy market.

The most problematic aspects of the proposed model include identifying the structural elements of SPE, i.e. the corresponding vector of local potentials, obtaining consistent and adequate expert information, as well as overloading with calculation operations. An automated model for managing the SPE is expected to be developed by means of the artificial intelligence techniques in the future.

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References

Abraham, S. (2012). *Strategic Planning: A Practical Guide for Competitive Success* (2nd ed.). Emerald Publishing.

Ansoff, H.I. (1979). *Strategic Management*. Palgrave Macmillan. https://doi.org/10.1007/978-1-349-02971-6

Azarova, A., & Antoniuk, O. (2012). System for assessing the level of use of the strategic potential of an enterprise and making decisions to increase it. *Neuro-Fuzzy Modeling Techniques in Economics, 1*, 37-64. http://doi.org/10.33111/nfmte.2012.037

Balan, V. (2022). Enterprise strategies stratification based on the fuzzy matrix approach. *Neuro-Fuzzy Modeling Techniques in Economics, 11*, 124-156. http://doi.org/10.33111/nfmte.2022.124

Balan, V., & Makarchenko, V. (2023). Fuzzy approach to assessing the strategic potential of a dairy processing enterprise. *Internauka. Series: "Economic Sciences", 3*(71), 115-130. https://doi.org/10.25313/2520-2294-2023-3-8684

Balan, V. (2020a). Nechitka model otsiniuvannia ta vyboru stratehii na osnovi modyfikatsii kvantytatyvnoi matrytsi stratehichnoho planuvannia [Fuzzy model of evaluation and selection of strategies based on modification of the quantitative strategic planning matrix]. *Problemy systemnoho pidkhodu v ekonomitsi (Problems of systemic approach in the economy), 3*(77), 85-93. https://doi.org/10.32782/2520-2200/2020-3-12 [in Ukrainian]

Balan, V. (2020b). Zastosuvannia dynamichnoho nechitkoho SPACE-analizu dlia formuvannia stratehii pidpryiemstva [Application of dynamic fuzzy SPACE-analysis for forming enterprise strategies]. *Neiro-Nechitki Tekhnolohii Modelyuvannya v Ekonomitsi (Neuro-Fuzzy Modeling Techniques in Economics), 9*, 26-64. http://doi.org/10.33111/nfmte.2020.026 [in Ukrainian]

Bellman, R.E., & Zadeh, L.A. (1970). Decision-Making in a Fuzzy Environment. *Management Science, 17*(4), B141-B164. https://doi.org/10.1287/mnsc.17.4.B141

David, F. R., & David, F. R. (2015). *Strategic management: A Competitive Advantage Approach, Concepts and Cases*. Pearson Education Limited.

David, M.E., David, F. R., & David, F. R. (2016). The quantitative strategic planning matrix: a new marketing tool. *Journal of Strategic Marketing, 25*(4), 342-352. http://dx.doi.org/10.1080/0965254X.2016.1148763

Fahey, L., & Randall, R.M. (2000). *The Portable MBA in Strategy* (2nd ed.). John Wiley & Sons, Inc.

Fleisher, C.S., & Bensoussan, B. (2002). *Strategic and Competitive Analysis: Methods and Techniques for Analyzing Business Competition*. Pearson College Div.

Friedrichsen, M., Zarea, H., Tayebi, A., & Abad, F.A.S. (2017). Competitive strategies of knowledge and innovation commercialization: a unified SWOT and Fuzzy AHP approach. *AD-minister, 30*, 45-72. https://doi.org/10.17230/ad-minister.30.3

Ghazinoory, S., Zadeh, A.E., & Memariani, A. (2007). Fuzzy SWOT analysis. *Journal of Intelligent & Fuzzy Systems: Applications in Engineering and Technology, 18*(1), 99-108. https://doi.org/10.3233/IFS-2007-00334

Ginevičius, R., Podvezko, V., Novotny, M., & Komka, A. (2012). Comprehensive Quantitative Evaluation of the Strategic Potential of an Enterprise. *Economic Computation and Economic Cybernetics Studies and Research, 1*, Article 4. https://ecocyb.ase.ro/2012pdf/Ginevicus%20%20Romualdas%20_T_.pdf

Grant, R.M. (2021). *Contemporary Strategy Analysis* (11th ed.). Wiley.

Hussey, D.E. (1998). *Strategic Management: From Theory to Implementation* (4th ed.). Butterworth-Heinemann.

Hnatiienko, H., Snytyuk, V., Tmienova, N., Zatonatskiy, D., & Zhylinska, O. (2022). Mathematical Support of the Task of Determining the Strategic Directions of Development and Priorities of the Organization. *CEUR Workshop Proceedings, 3347*, 169-184. https://ceur-ws.org/Vol-3347/Paper_15.pdf

Hussey, D.E. (1999). *Strategy and Planning: A Manager's Guide*. Wiley.

Jeyaraj, K.L., Muralidharan, C., Senthilvelan, T., & Deshmukh, S.G. (2012). A hybrid business strategy selection process for a textile company using SWOT and fuzzy ANP – a case study. *International Journal of Management, 3*(2), 124-143. https://iaeme.com/Home/article_id/IJM_03_02_012

Johnson, G., Scholes, K., & Whittington, R. (2008). *Exploring Corporate Strategy: Text and Cases* (8th ed.). Financial Times/Prentice Hall.

Kasyanchuk, T. (2016). Modeliuvannia optymalnoho investytsiynoho portfelia dyversyfikovanoi biznes-hrupy v umovakh nevyznachenosti

[Modelling of optimal investment portfolio of diversified business-group under uncertainty]. *Neiro-Nechitki Tekhnolohii Modelyuvannya v Ekonomitsi (Neuro-Fuzzy Modeling Techniques in Economics), 6*, 24-59. https://doi.org/10.33111/nfmte.2016.024 [In Ukrainian]

Kosko, B. (1993). *Fuzzy Thinking: The New Science of Fuzzy Logic*. Hyperion.

Kotler, Ph., Berger, R., & Bickhoff, N. (2016). *The Quintessence of Strategic Management: What You Really Need to Know to Survive in Business* (2nd ed.). Springer.

Kozlovskyi, S., Butyrskyi, A., Poliakov, B., Bobkova, A., Lavrov, R., & Ivanyuta, N. (2019). Management and comprehensive assessment of the probability of bankruptcy of Ukrainian enterprises based on the methods of fuzzy sets theory. *Problems and Perspectives in Management, 17*(3), 370–381. http://dx.doi.org/10.21511/ppm.17(3).2019.30

Kuzior, A., Arefieva, O., Poberezhna, Z., & Ihumentsev, O. (2022). The Mechanism of Forming the Strategic Potential of an Enterprise in a Circular Economy. *Sustainability*, *14*(6), Article 3258. https://doi.org/10.3390/su14063258

Kuzu, Ö.H. (2020). Strategy Selection in the Universities via Fuzzy AHP Method: A Case Study. *International Journal of Higher Education, 9*(2), 107-117. https://doi.org/10.5430/ijhe.v9n2p107

Lambin J.-J. (1996). *Strategic Marketing Management*. McGraw-Hill.

Lampel, J., Mintzberg, H., Quinn, J.B., & Ghoshal, S. (2014). *The Strategy Process: Concepts, Contexts, Cases* (5th ed.). Pearson Education.

Leekwijck, W., & Kerre, E.E. (1999). Defuzzification: criteria and classification. *Fuzzy Sets and Systems, 108*(2), 159-178. https://doi.org/10.1016/S0165-0114(97)00337-0

Leleur, S. (2012). *Complex Strategic Choices. Applying Systemic Planning for Strategic Decision Making.* Springer London. https://doi.org/10.1007/978-1-4471-2491-7

Lin, C., & Hsieh, P.-J. (2004). A fuzzy decision support system for strategic portfolio management. *Decision Support Systems, 38*(3), 383-398. https://doi.org/10.1016/S0167-9236(03)00118-0

Matviychuk, A. (2010). Bankruptcy prediction in transformational economy: discriminant and fuzzy logic approaches. *Fuzzy economic review, 15*(1), 21–38. https://doi.org/10.25102/fer.2010.01.02

Nasab, H.H., & Milani, A.S. (2012). An improvement of quantitative strategic planning matrix using multiple criteria decision making and fuzzy numbers. *Applied Soft Computing, 12*(8), 2246-2253. https://doi.org/10.1016/j.asoc.2012.03.010

Pap, E., Bosnjak, Z., & Bosnjak, S. (2000). Application of fuzzy sets with different t-norms in the interpretation of portfolio matrices in strategic management. *Fuzzy Sets and Systems, 114*(1), 123-131. https://doi.org/10.1016/S0165-0114(98)00196-1

Piatnytska, G., Yatsyshyna, K., & Berezin, V. (2019). Enterprise's strategic potential. *Scientia Fructuosa, 4*(126), 42-56. http://doi.org/10.31617/visnik.knute.2019(126)04

Porter, M. E. (1980). *Competitive Strategy: Techniques for Analyzing Industries and Competitors.* Free Press.

Porter, M. E. (2008). The five competitive forces that shape strategy. *Harvard Business Review, 86*(1), 78–93. https://hbr.org/2008/01/the-five-competitive-forces-that-shape-strategy

Sagar, M. K., Jayaswal, P., & Kushwah, K. (2013). Exploring Fuzzy SAW Method for Maintenance Strategy Selection Problem of Material Handling Equipment. *International Journal of Current Engineering and Technology, 3*(2), 600-605. https://inpressco.com/exploring-fuzzy-saw-method-for-maintenance-strategy-selection-problem-of-material-handling-equipment/

Santos-Caballero, A., & Gil Lafuente, J. (2017). The New Fuzzy SWOT: Empirical Application with Expertons. *Esic Market Economics and Business Journal, 48*(156), 121-141. https://doi.org/10.7200/esicm.156.0481.3e

Thompson, A.A., & Strickland, A.J. (2003). *Strategic Management: Concepts and Cases* (13th ed.). McGraw Hill.

Wheelen, T.L., Hunger, J.D., Hoffman, A.N., & Bamford, C.E. (2018). *Strategic Management and Business Policy: Globalization, Innovation, and Sustainability* (15th ed.). Pearson Education Limited.

Zadeh, L.A. (1965). Fuzzy Sets. *Information and Control, 8*(3), 338-353. https://doi.org/10.1016/S0019-9958(65)90241-X

Zhylinska, O., Stepanova, A., & Horbas, I. (2017). Effective synergic interaction of strategic business units of diversified company. *Problems and Perspectives in Management, 15*(4), 38-49. https://doi.org/10.21511/ppm.15(4).2017.04

Zhylinska, O., & Sviderska, N. (2024). Streamlining marketing activities: essential tools for organizational success. *Technology Audit and Production Reserves, 1*(4(75), 27–32. https://doi.org/10.15587/2706-5448.2024.298828

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