

DOI: 10.55643/fcaptop.2.61.2025.4678

Oksana Verbova

D.Sc. in Economics, Associate
Professor of the Department of
Management, Lviv University of Trade
and Economics, Lviv, Ukraine;
e-mail: o.s.verbova.edu@gmail.com
ORCID: [0000-0002-9584-629x](https://orcid.org/0000-0002-9584-629x)

FORMATION OF A METHODOLOGICAL APPROACH TO CHOOSE AN HR MANAGEMENT STRATEGY TO ENSURE THE FINANCIAL SECURITY OF AN ENTERPRISE

ABSTRACT

In today's conditions, personnel security has reached a completely different level. The problem of human resource management at an enterprise is increasingly becoming a significant factor in determining the level of not only economic security but also has a direct impact on the financial condition and protection of financial interests. In such conditions, HR management is a key element of any strategy for the safe development of an enterprise. At the same time, the strategy for ensuring financial security also depends on the choice of the strategy itself. Therefore, we consider it necessary to form an appropriate methodological approach that will allow, based on the results obtained, to choose the right HR management strategy to ensure the financial security of the enterprise. For this purpose, the key object is not only the parameters for choosing an HR management strategy at the enterprise but also financial security, in particular. We have formed a clear sequence of selection and justification of the optimal HR management strategy in order to ensure the financial security of the enterprise. At the same time, as a result of the analysis of the most well-known methods for solving multi-criteria problems, we have chosen the Zadeh fuzzy set theory method, which will form the basis of the proposed methodological approach. Key term sets for determining degrees of membership are identified. The results of fuzzy sets made it possible to construct graphs of utility functions. This, in turn, allowed to form a fuzzy knowledge base for choosing the optimal HR management strategy to ensure the financial security of the enterprise. Detailed justification of all components of the formed methodological approach allowed us to state the possibility of its practical application in the activities of modern Ukrainian enterprises in the future.

Keywords: methodological approach, strategic approach, HR management, financial security, enterprise activities, financial condition, personnel security, HR strategy, linguistic variable

JEL Classification: M12, M54

INTRODUCTION

Conceptual and categorical apparatus

HR management is the science and art of effective management of people in the conditions of their professional activity. It is a system of principles, methods and mechanisms for optimal recruitment, development, motivation and rational use of personnel. Properly selected HR management is the key to the gradual development of the enterprise. Human resource management directly affects the processes of enterprise management, which, in turn, allows you to obtain positive results in the long term.

The financial security of an enterprise is the state of the financial system, which is characterized by balance, resistance to internal and external negative influences, and the ability to ensure the effective functioning of the economic system and its growth. The state of the financial system is characterized by balance, resistance to internal and external negative influences, and the ability to ensure the effective functioning of the economic system and its growth.

Received: 14/12/2024

Accepted: 06/04/2025

Published: 30/04/2025

© Copyright
2025 by the author(s)



This is an Open Access article
distributed under the terms of the
[Creative Commons CC-BY 4.0](https://creativecommons.org/licenses/by/4.0/)

Justification of the need for a strategic approach to ensuring the financial security of an enterprise

Strategy always has a more significant impact on the level of financial security than the same tactics and operational decisions. Therefore, the need for a strategic approach to ensuring the financial security of an enterprise is primarily due to the following:

- the increasing influence of personnel decisions on the financial stability of an enterprise;
- the need for rapid adaptation of HR strategies to dynamic market conditions;
- the strengthening of the role of complex analytical tools, in particular the theory of fuzzy sets, in strategic planning;
- the creation of conditions for the formation of an optimal HR strategy capable of minimizing the uncertainty of financial results.

The need and necessity for HR strategies in the context of ensuring the financial security of an enterprise

It should be noted that modern realities dictate more stringent conditions for doing business, therefore the strategy for ensuring personnel security occupies an increasingly important position in the strategic management of an enterprise. Ensuring a high level of enterprise security, as well as taking into account possible threats and eliminating personnel risks is not possible without the use of appropriate strategic instruments. Human capital has become extremely important in martial law and its loss is a direct threat not only to personnel security but also to financial security. Unfortunately, in the current literature on strategic management, there are no studies that would pay sufficient attention to the issue of choosing an HR management strategy to ensure financial security. This omission does not allow management to fully consider HR management as a component of the strategic provision of the financial security of the enterprise. Therefore, the issues of methodological justification for the choice of such a strategy are quite relevant and relevant.

Despite the presence of numerous methods, means, techniques, means and tools for maintaining a safe state of the main activities of enterprises by influencing the external environment and implementing rational economic behaviour, a significant number of threats and risks are located precisely in the internal organizational environment of enterprises, and their source is personnel. Disproportions in the distribution of income between employers and employees, distortions in the applied systems of labour motivation and personnel incentives, the complexity of domestic labour legislation, and sometimes an insufficient level of integrity of management personnel actualize the need to build effective mechanisms for HR management of enterprises. This determines the relevance of the chosen topic of our article, the identification of its subject-object sphere, and the formulation of the goal and objectives of the study. At the same time, we believe that financial security is an important issue for most Ukrainian enterprises in times of instability in the current business environment. Of course, in times of war, it becomes even more important. But along with this, the problem of human capital also becomes more important. Due to the decrease in the loyalty of personnel at enterprises, there is an increase in their destructive intentions, starting from theft and ending with industrial espionage. To prevent such events from occurring at an enterprise, and to ensure security and the ability to resist threats from personnel, it is necessary to first determine which HR strategy is best to choose.

LITERATURE REVIEW

Modern scientific and practical developments in the field of HR management

As Andriušaitienė notes, (2013) HR management is an urgent issue for most domestic enterprises in times of instability in the modern business environment. Due to the decrease in personnel loyalty, enterprises are observed to be activating their destructive intentions, starting from theft and ending with industrial espionage. To prevent such a development of events at the enterprise, and to ensure the protection and ability to withstand threats from the side of personnel, an appropriate strategy and tactics of HR management are needed. In addition to all this, as Igielski, (2015) adds, it is precisely the competitive and turbulent conditions of the activities of enterprises in the business environment and the economic challenges associated with the limited natural resources, and cost optimization, that force managers at all levels of management to resort to an active search for innovative approaches to the formation of the resource base. In such a situation, a thorough analysis of the available internal resources at all levels of the organizational structure of HR management is of great importance. Gadzali, et al. (2023) well note that the main thing is not to describe strategies for HR management, but to determine the methodology for how to correctly evaluate them and according to what parameters to make a choice.

According to Kokkaew, et al. (2022) and Cherep, et al. (2023) in modern conditions, the main role of HR management is to develop human resources and to promote the diverse, professional contribution of personnel to achieving the common

goals of the organization and ensuring financial security. The battlefield is the external market - a competitive market or a market for public services - and not the internal relationships of personnel. This change in priorities also leads to a change in the role of HR managers: from now on, they must focus on the constant desire to provide, develop, train and motivate personnel in their actions for the benefit of the enterprise in such a way as to significantly increase its level of financial security. We agree with this statement, however, we consider it appropriate to add that it is possible, which is listed by the authors, only in the case of the formation of an appropriate strategy. Kopytko, et al. (2023) and Uzule, et al. (2024) believe that the implementation of HR management strategies at enterprises should include long-term staff development (careful selection of qualified employees of appropriate age, experience, and professional skills), the development of an effective system of employee incentives and motivation, the direct participation of employees in the activities of the enterprise, the consistency of HR managers' activities in personnel management; the establishment of appropriate working conditions, the establishment of appropriate wages for employees, and high-quality personnel policy at the enterprise. This also includes the issue of creating a safe environment for human capital.

Literature review on the positions of scientists on the strategic approach to HR management

As Bielova rightly notes, (2018) it is the justification and choice of a personnel management strategy that is an important stage in the context of modelling the process of forming and ensuring financial security at an enterprise. The reason is the fact that the direction of personnel work itself directly determines how the resource provision of the enterprise's financial security will be carried out. Kauffeld (2018) emphasizes that depending on the level of security of the enterprise and its financial capabilities, the following types of strategies for ensuring economic security are distinguished: systematic planned security; rapid response; institutionalization and subsequent strengthening; comprehensive guarantee; damage compensation; rapid response; segmented security; partial protection; delegation of functions. However, not all of them are optimized for modern conditions and require clarification.

In his work, Iovanella, (2024) proposes to use an approach according to which, to ensure the economic security of an enterprise, three strategies should be used: contractual, matrix, and comprehensive. Each of these, at the same time, includes strategic principles for HR management. Thus, we see how significant a role the HR management system plays in the context of ensuring the security of an enterprise.

As a result of our literature review, we have established that there is currently no clear sequence regarding the selection and justification of the optimal HR management strategy to ensure financial security at an enterprise (Figure 1).

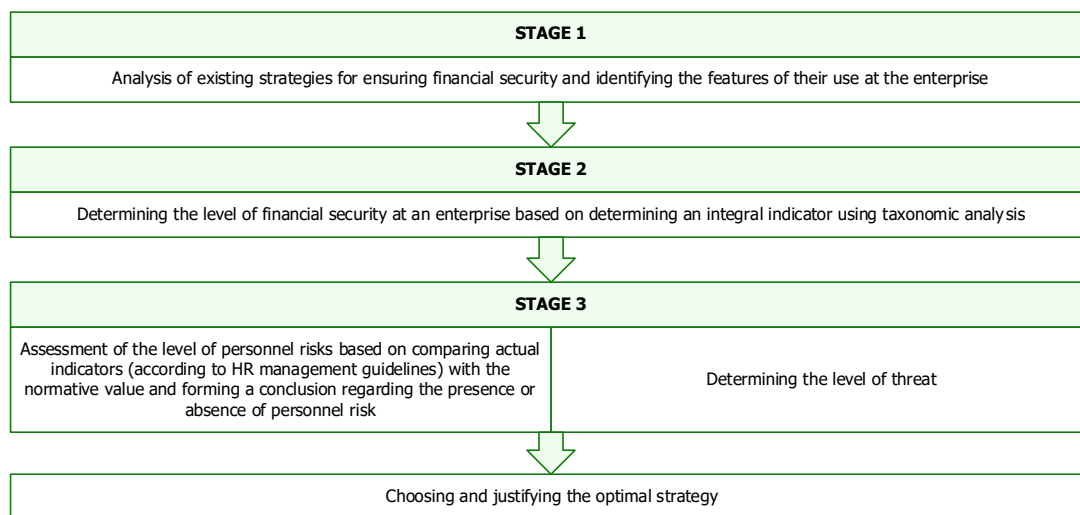


Figure 1. Sequence for selecting and justifying the optimal HR management strategy to ensure financial security at the enterprise.

We believe that this is the sequence in which this process should be carried out in order to ensure the financial security of the enterprise.

AIMS AND OBJECTIVES

The purpose of the article is to form an appropriate methodological approach that will allow, based on the results obtained, to choose the right HR management strategy in order to ensure the financial security of the enterprise. With this goal, the

key object is not only the parameters for choosing an HR management strategy at the enterprise but also financial security, in particular. The tasks of the article are as follows:

- to develop a methodological approach for choosing an HR strategy taking into account financial security;
- to integrate the theory of fuzzy sets into the process of evaluating personnel parameters;
- to form an appropriate fuzzy knowledge base to substantiate the optimal HR strategy.

The methods used in this work have already been applied in other scientific and practical areas of activity, however, within the framework of our study, the author's vision of how to best combine and combine them to achieve the set goal will be presented. That is, it is important to demonstrate how and by what indicators or parameters to conduct evaluations to enterprise management.

METHODS

Justification of the selected methodology

As presented in Figure 1 above in the text, when deciding which optimal HR management strategy should be chosen in order to ensure the financial security of the enterprise, an important place is occupied by a variety of methods, from more general ones such as the method of analysis, synthesis, abstract-logical, to more complex ones such as taxonomic analysis, the use of experts, etc. At the same time, in the case of obtaining qualitative data in expert forecasting, the most problematic issue remains the issue of processing qualitative information. The use of a single method of interpretation poses the risk of subjective information creation by the researcher himself. It is obvious that traditional mathematical methods can be applied to this type of data to a very limited extent. As the analysis of the literature above showed, we come to the conclusion that the task of choosing an HR management strategy is a decision-making task, the solution is to use methods for solving multi-criteria problems in conducting expert assessment and processing research results. A detailed analysis of existing methods (Abdullah, et al., 2013; Nordhaug, 2004) allowed us to determine which methods are the most optimal for fulfilling the task we have set (Figure 2).

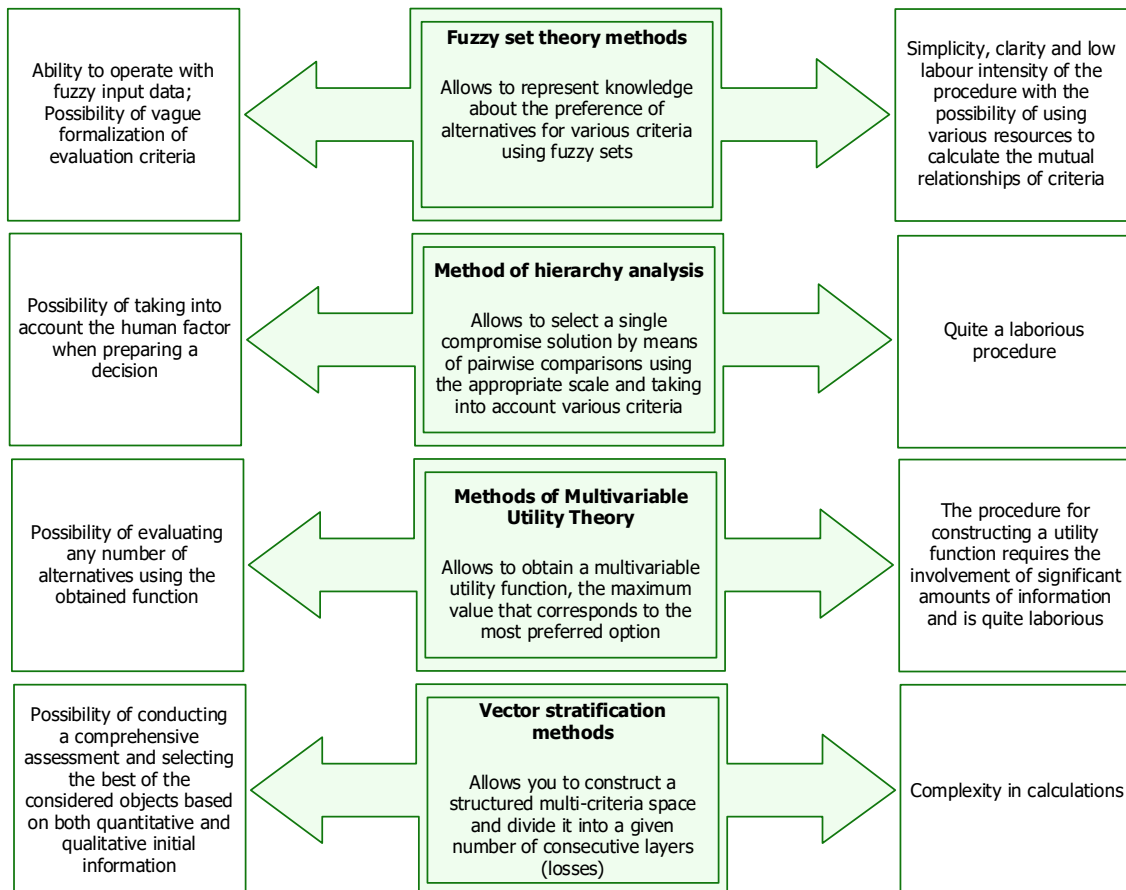


Figure 2. Analysis of the most well-known methods for solving multi-criteria problems. (Source: Zadeh, 2004; Saaty, et al., 2017)

At the same time, as we can see in Figure 2, each has its own advantages and disadvantages, it should be further justified which of them is still optimal for our study.

Justification of the choice of the most optimal method for solving the problem

One of the current approaches used in various tasks of decision-making under conditions of uncertainty is based on the application of the tools of fuzzy set theory, the founder of which is L. Zadeh. Fuzzy set theory operates with "linguistic" variables, the values of which are expressed by words or propositions of natural or formal language. Therefore, a certain set of linguistic values for such a variable forms the so-called term set. It should be noted that the use of the theory of fuzzy sets significantly contributes to the formation of formal schemes for solving certain problems, which can have extremely different levels/degrees of uncertainty, which is explained by the incompleteness, internal contradiction, ambiguity and blurring of the initial data, which represent approximate quantitative or qualitative estimates of the parameters of objects. Such uncertainty, of course, can be systematic, and therefore explains the complexity of the task, the lack of information, and the time limit for making certain decisions.

Taking into account the purpose of the study and the existing conditions of uncertainty and a certain subjectivity of the information base for analyzing the process of choosing an HR manager's strategy that will satisfy the parameters of ensuring the financial security of the enterprise, the fuzzy set method was chosen. Also, we note that in our opinion, the main advantages of its use are:

1. The expert retains the right to uncertainty, and this uncertainty is taken into account and therefore minimally affects the results of the study.
2. It is possible to take into account a myriad of assessment factors, which, in turn, increases the quality of the assessment.
3. The presented methodology is universal, it can be adapted to solve most research problems.

We engaged experts who helped determine both the indicators by which the evaluation should be carried out and helped form matrices by carrying out the evaluation on a scale according to the modelling method that we chose and described above in the text.

So, let's summarize that it is the theory of fuzzy sets that allows us to calculate the degree of membership of an element in a subset (i.e., an element can belong to a subset in a larger or smaller world). At the same time, the most important and central place among all components in the theory of fuzzy sets belongs to the so-called utility function, which is based on a term set of meanings and linguistic term factors constructed using it.

RESULTS

The impact of the labour market on ensuring the financial security of enterprises

Enterprises are in a state of constant adaptation, building new hiring strategies focused on flexibility and rapid response to the situation. However, the duration of the period of destruction, uncertainty and the spread of threatening trends in war conditions make it impossible for them to function normally. In conditions of increased turbulence in the labour market, problems associated with finding quality jobs are complicated by the lack of motivation of employees. The basis of such motivation is regular stable income. The level of remuneration offered by employers in our country does not always meet the expectations of job seekers. Therefore, this is a problem primarily of the current HR strategies at Ukrainian enterprises. The lack of "intelligence" destroys the stability of internal processes. Personnel security suffers as a component of financial and economic (Figure 3).

Further stabilization of regional labour markets in the conditions of war and post-war reconstruction requires new strategies that could primarily focus on the level of financial security of the enterprise, minimize personnel risks and counteract threats.

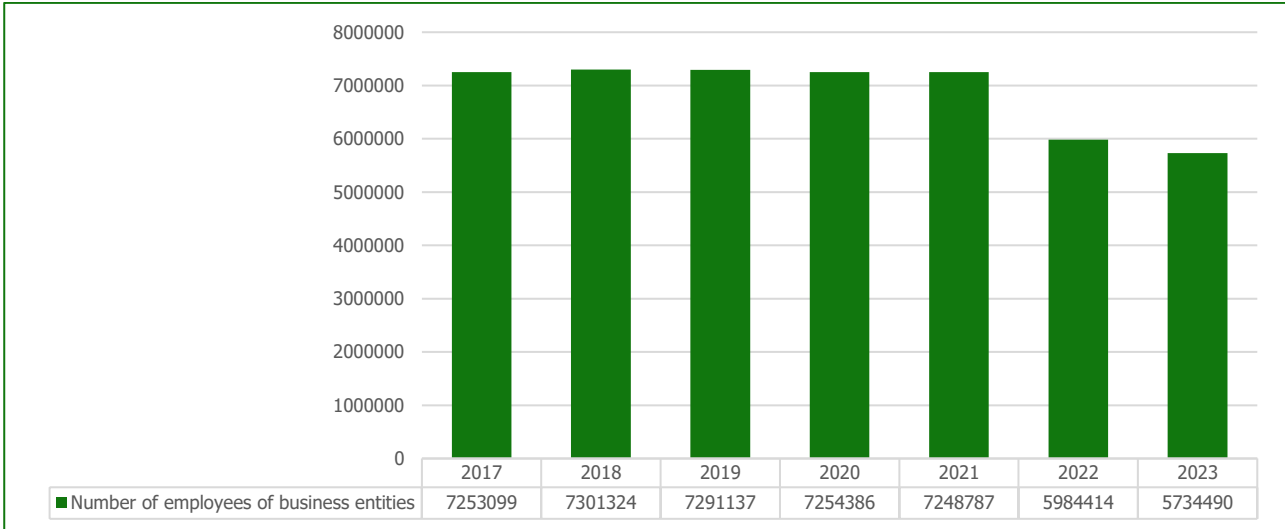


Figure 3. Changes in the number of hired employees at Ukrainian enterprises. (Source: State Statistics Service of Ukraine, 2024)

The essence and content of the impact of the labour market on the HR strategy of the enterprise are as follows:

- determines the possibility of attracting the necessary specialists;
- affects the strategies for attracting and retaining employees;
- requires the adaptation of HR processes in accordance with new norms;
- determines strategies for retaining and developing a career.

Formation of a methodological approach

Therefore, as input parameters of the fuzzy inference system, 3 fuzzy linguistic variables were proposed:

- "level of financial security";
- "level of personnel risks";
- "level of threats".

As output parameters, the fuzzy linguistic variable "strategy". Let's form term sets of values (Table 1).

Table 1. Term sets of linguistic variable values of HR strategies for ensuring financial security.			
Variable	Linguistic essence of the variable	Evaluation terms	Universal set
F	Financial security level	High, average or low	[0-1]
S	Human resource risk level		
F	Threat level		

The universal set from 0 to 1 allows standardizing and normalizing values, ensuring homogeneity of estimates. Taking into account the fact that the characteristics of the parameters of the selected HR strategy for ensuring financial security can be in a fairly wide range, an important step in the study is to establish the values that would ensure the necessary level of financial security. Therefore, the possible values of linguistic variables were divided into four ranges, which is important for constructing the utility function, as a measure of the priority of a specific value of the corresponding characteristic. The matrices for each term are formed in Table 1, where the degrees of membership are also presented (Table 2).

Table 2. Matrices of pairwise comparisons and degrees of membership for input variables.

Linguistic changes	Terms	Matrices					Degrees	
		x/x	x1	x2	x3	x4		x5
Financial security level	Low	x1	1	$\frac{8}{9}$	$\frac{6}{9}$	$\frac{4}{9}$	$\frac{2}{9}$	x1=1/ First row sum =0.31 x2=1/ Second row sum =0.26 x3=1/ Third row sum =0.205 x4=1/ Fourth row sum =0.154 x5=1/ Fifth row sum =0.065
		x2	$\frac{9}{8}$	1	$\frac{6}{7}$	$\frac{4}{7}$	$\frac{2}{7}$	
		x3	$\frac{9}{6}$	$\frac{7}{6}$	1	$\frac{4}{5}$	$\frac{2}{5}$	
		x4	$\frac{9}{4}$	$\frac{7}{4}$	$\frac{5}{4}$	1	$\frac{1}{4}$	
		x5	$\frac{9}{2}$	$\frac{7}{2}$	$\frac{5}{2}$	$\frac{4}{2}$	1	
	Average	x1	1	$\frac{4}{1}$	$\frac{6}{1}$	$\frac{4}{1}$	$\frac{2}{1}$	x1=1/ First row sum =0.053 x2=1/ Second row sum =0.169 x3=1/ Third row sum =0.361 x4=1/ Fourth row sum =0.282 x5=1/ Fifth row sum =0.133
		x2	$\frac{1}{4}$	1	$\frac{6}{3}$	$\frac{4}{3}$	$\frac{2}{3}$	
		x3	$\frac{1}{6}$	$\frac{3}{6}$	1	$\frac{4}{6}$	$\frac{2}{6}$	
		x4	$\frac{1}{4}$	$\frac{3}{4}$	$\frac{6}{4}$	1	$\frac{2}{4}$	
x5		$\frac{1}{2}$	$\frac{3}{2}$	$\frac{6}{2}$	$\frac{4}{2}$	1		
High	x1	1	$\frac{3}{1}$	$\frac{5}{1}$	$\frac{7}{1}$	$\frac{9}{1}$	x1=1/ First row sum =0.04 x2=1/ Second row sum =0.085 x3=1/ Third row sum =0.179 x4=1/ Fourth row sum =0.286 x5=1/ Fifth row sum =0.409	
	x2	$\frac{1}{3}$	1	$\frac{5}{2}$	$\frac{7}{2}$	$\frac{9}{2}$		
	x3	$\frac{1}{5}$	$\frac{2}{5}$	1	$\frac{7}{4}$	$\frac{9}{4}$		
	x4	$\frac{1}{7}$	$\frac{2}{7}$	$\frac{4}{7}$	1	$\frac{9}{6}$		
	x5	$\frac{1}{9}$	$\frac{2}{9}$	$\frac{4}{9}$	$\frac{6}{9}$	1		
Human resource risk level	Low	x1	1	$\frac{8}{9}$	$\frac{6}{9}$	$\frac{4}{9}$	$\frac{3}{9}$	x1=1/ First row sum =0.3 x2=1/ Second row sum =0.251 x3=1/ Third row sum =0.205 x4=1/ Fourth row sum =0.152 x5=1/ Fifth row sum =0.085
		x2	$\frac{9}{8}$	1	$\frac{6}{7}$	$\frac{4}{7}$	$\frac{3}{7}$	
		x3	$\frac{9}{6}$	$\frac{7}{6}$	1	$\frac{4}{5}$	$\frac{2}{5}$	
		x4	$\frac{9}{4}$	$\frac{7}{4}$	$\frac{5}{4}$	1	$\frac{1}{3}$	
		x5	$\frac{9}{3}$	$\frac{7}{3}$	$\frac{5}{2}$	$\frac{3}{2}$	1	
	Average	x1	1	$\frac{4}{1}$	$\frac{6}{1}$	$\frac{4}{1}$	$\frac{2}{1}$	x1=1/ First row sum =0.059 x2=1/ Second row sum =0.19 x3=1/ Third row sum =0.375 x4=1/ Fourth row sum =0.25 x5=1/ Fifth row sum =0.125
		x2	$\frac{1}{4}$	1	$\frac{6}{3}$	$\frac{4}{3}$	$\frac{2}{3}$	
		x3	$\frac{1}{6}$	$\frac{3}{6}$	1	$\frac{4}{6}$	$\frac{2}{6}$	
		x4	$\frac{1}{4}$	$\frac{3}{4}$	$\frac{6}{4}$	1	$\frac{2}{4}$	
x5		$\frac{1}{2}$	$\frac{3}{2}$	$\frac{6}{2}$	$\frac{4}{2}$	1		
High	x1	1	$\frac{3}{2}$	$\frac{5}{2}$	$\frac{7}{2}$	$\frac{9}{2}$	x1=1/ First row sum =0.077 x2=1/ Second row sum =0.082 x3=1/ Third row sum =0.172 x4=1/ Fourth row sum =0.286 x5=1/ Fifth row sum =0.391	
	x2	$\frac{2}{3}$	1	$\frac{5}{2}$	$\frac{7}{2}$	$\frac{9}{2}$		
	x3	$\frac{2}{5}$	$\frac{2}{5}$	1	$\frac{7}{4}$	$\frac{9}{4}$		
	x4	$\frac{2}{7}$	$\frac{2}{7}$	$\frac{4}{7}$	1	$\frac{9}{6}$		
	x5	$\frac{2}{9}$	$\frac{2}{9}$	$\frac{4}{9}$	$\frac{6}{9}$	1		
Threat level	Low	x1	1	$\frac{7}{8}$	$\frac{5}{8}$	$\frac{3}{8}$	$\frac{2}{8}$	x1=1/ First row sum =0.32 x2=1/ Second row sum =0.263 x3=1/ Third row sum =0.198 x4=1/ Fourth row sum =0.133 x5=1/ Fifth row sum =0.083
		x2	$\frac{8}{7}$	1	$\frac{5}{6}$	$\frac{3}{6}$	$\frac{2}{6}$	
		x3	$\frac{8}{5}$	$\frac{6}{5}$	1	$\frac{3}{4}$	$\frac{2}{4}$	
		x4	$\frac{8}{3}$	$\frac{6}{3}$	$\frac{4}{3}$	1	$\frac{1}{2}$	
		x5	$\frac{8}{2}$	$\frac{6}{2}$	$\frac{4}{2}$	$\frac{2}{2}$	1	
	Average	x1	1	$\frac{5}{3}$	$\frac{7}{3}$	$\frac{4}{3}$	$\frac{3}{3}$	x1=1/ First row sum =0.136 x2=1/ Second row sum =0.227 x3=1/ Third row sum =0.318 x4=1/ Fourth row sum =0.182 x5=1/ Fifth row sum =0.136
		x2	$\frac{3}{5}$	1	$\frac{7}{5}$	$\frac{4}{5}$	$\frac{3}{5}$	
		x3	$\frac{3}{7}$	$\frac{5}{7}$	1	$\frac{4}{7}$	$\frac{3}{7}$	
		x4	$\frac{3}{4}$	$\frac{5}{4}$	$\frac{7}{4}$	1	$\frac{3}{4}$	
x5		$\frac{3}{3}$	$\frac{5}{3}$	$\frac{7}{3}$	$\frac{4}{3}$	1		
High	x1	1	$\frac{2}{1}$	$\frac{4}{1}$	$\frac{6}{1}$	$\frac{8}{1}$	x1=1/ First row sum =0.048 x2=1/ Second row sum =0.133 x3=1/ Third row sum =0.208 x4=1/ Fourth row sum =0.275 x5=1/ Fifth row sum =0.333	
	x2	$\frac{1}{2}$	1	$\frac{4}{3}$	$\frac{6}{3}$	$\frac{8}{3}$		
	x3	$\frac{1}{4}$	$\frac{3}{4}$	1	$\frac{6}{5}$	$\frac{8}{5}$		
	x4	$\frac{1}{6}$	$\frac{3}{6}$	$\frac{5}{6}$	1	$\frac{8}{7}$		
	x5	$\frac{1}{8}$	$\frac{3}{8}$	$\frac{5}{8}$	$\frac{7}{8}$	1		

In the presented table of the pairwise comparison matrix, the notation x_1, x_2, x_3, x_4, x_5 is used to denote various linguistic variables or terms used to evaluate certain parameters of the HR strategy. The numerical values in the table (e.g., 8/9, 6/9) represent pairwise comparisons between these linguistic variables. The a/b means that the left value (a) is compared to the right value (b). For example, x_1 is compared to x_2 as 8/9, which can be interpreted as u_1 being somewhat less important than x_2 or x_1 having a lower degree of membership in a certain category compared to x_2 .

The calculated utility functions were normalized to unity by dividing them by the maximum degree of membership, as a result of which the linguistic variables were represented as fuzzy sets (Figure 4).

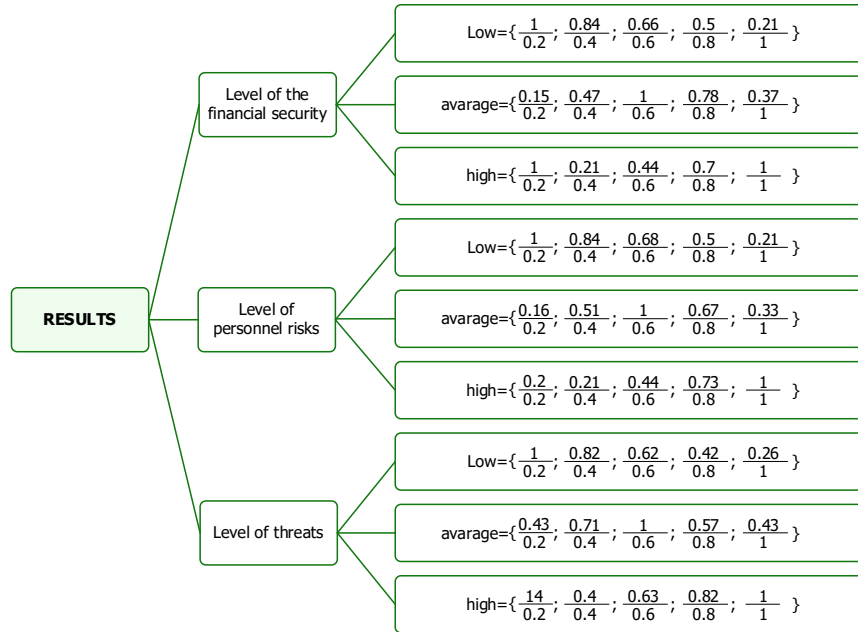


Figure 4. Fuzzy sets of the linguistic variables.

The obtained results allow us to construct graphs of utility functions of linguistic variables.

Determination of key parameters of the utility function

The obtained results allow us to construct graphs of utility functions of the linguistic variables "level of financial security", "level of personnel risks", and "level of threats" in relation to the linguistic terms "low", "medium", "high" (Figure 5).

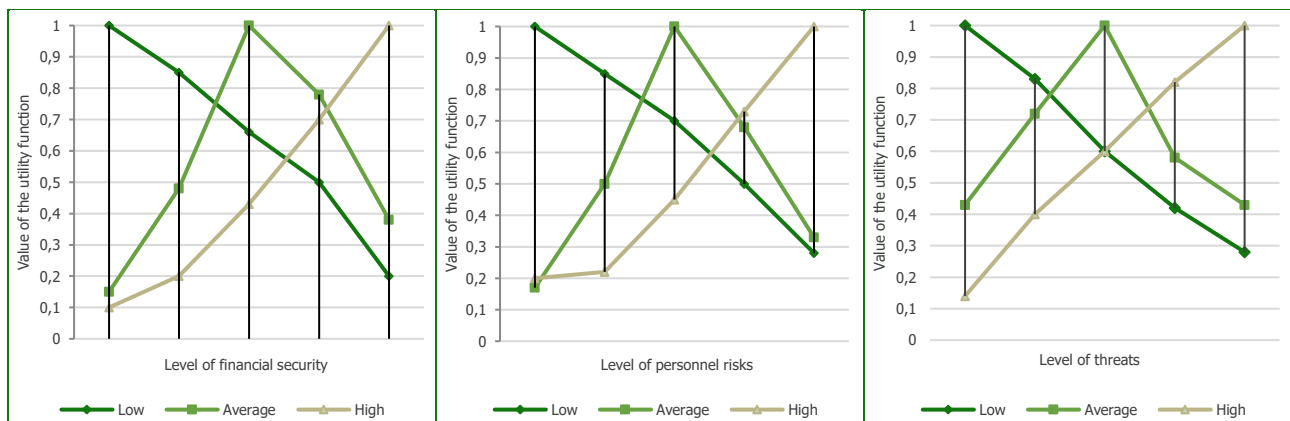


Figure 5. The utility function of a linguistic variable.

We believe that graphs of utility functions are an important tool for integrating HR management into the overall strategy of financial security of the enterprise, allowing for effective risk management and making informed decisions in conditions of uncertainty.

Forming a fuzzy knowledge base for choosing an HR strategy to ensure financial security

Thus, the analysis we conducted allows us to obtain fuzzy logical equations of the influence of linguistic variables on ensuring financial security, which guarantees the possibility of predicting the use of a particular proposed HR strategy. Thus, if the level of financial security of the enterprise is determined as high, and the level of personnel risks and the level of threats (according to expert assessments) is low, then it is advisable to apply a strategy for maintaining stability, which is characterized by monitoring changes in the external and internal environment (identifying possible threats), developing preventive protective measures with the possibility of rapid response with minimal resource costs. Next, we propose a strategy for increasing the efficiency of human capital. The basis for the development and implementation of the strengthening strategy is the average level of financial security and the acceptable level of threats and personnel risks (based on the results of a survey of experts). It provides for the implementation of certain measures aimed at improving the comprehensive provision of financial security in order to increase the level of security and prevent the implementation of the greatest threats. The application of the modification strategy is due to the low level of financial security with a high level of personnel risks and threats. Therefore, the modification strategy involves the implementation, first of all, of planned measures aimed at eliminating personnel risks, neutralizing internal threats, and adapting to changes in the external environment (Figure 6).

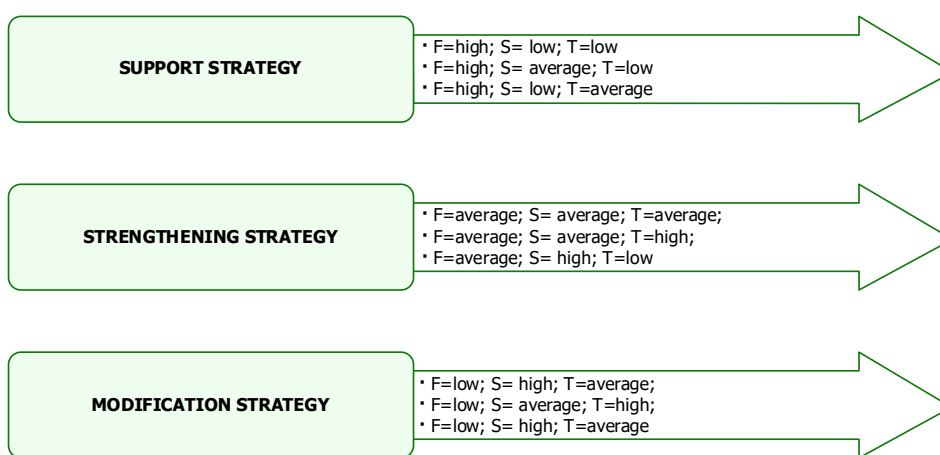


Figure 6. Fuzzy knowledge base for choosing an HR strategy to ensure financial security.

It is worth noting that the main components of the theory of fuzzy sets are utility functions, constructed using the term set of values and linguistic terms of factors, which allowed us to obtain fuzzy logical equations of the influence of linguistic variables. Thus, the management of enterprises can determine by what parameters which HR strategy will be optimal for it.

DISCUSSION

The issue of HR management and ensuring the financial security of an enterprise is not new. For example, the result of Koval, et al. (2019) through experts and modelling presents how the development of human capital affects the financial condition of small and medium-sized enterprises. At the same time, scientists even identify key strategic guidelines for this. Motorniuk, et al. (2023) also presented a methodical approach to choosing the optimal HR management strategy in order to ensure sustainable development. However, sustainable development for Ukrainian enterprises due to the war is not possible. However, we do not try to demonstrate which strategy should be chosen exactly. In our opinion, within the framework of this article, we only propose an approach to choosing an HR strategy to ensure the financial security of an enterprise using fuzzy set theory. Having this knowledge base, enterprise management itself, looking at its parameters, chooses the optimal strategy.

Krasivsky, et al. (2023) and Todoshchuk, et al. (2023) tried to present the impact of HR management on the security of the enterprise through visual modelling and mathematical representation. However, only one visual representation is not enough, clear sequential steps are needed. Such steps are proposed by Zachosova, et al. (2022) and Zygmunt, (2022). They believe that it is precisely through a strategic and innovative approach to HR management that financial and economic security is achieved, while they used the method of hierarchy analysis when we chose another. This can be seen in the methodology section. In turn, in this article, we have developed a model for choosing an HR strategy for ensuring the financial security of an enterprise using the fuzzy set method. The proposed approach is presented in the form of a certain sequence. It is determined that the implementation of the proposed model of choosing an HR strategy for ensuring financial

security will allow, on the one hand, to optimize the personnel management process, and on the other hand, to identify the hidden reserves of the enterprise and use them in the context of ensuring financial security.

CONCLUSIONS

Theoretical and methodological conclusions of the conducted research

Highlighting the key theoretical and methodological conclusions of the conducted research, we will highlight the most significant results:

1. The proposed methodological approach is based on the use of fuzzy set theory to justify the choice of HR management strategy, which makes the methodological approach more justified using real-life methods.
2. The importance of taking into account the financial security of the enterprise as a criterion for forming HR strategies has been proven.
3. It has been substantiated that the use of fuzzy sets allows us to determine the degree of belonging of each HR criterion to a specific strategy.
4. The possibility of taking into account implicit, qualitative and difficult-to-measure factors in the process of strategic choice has been demonstrated.
5. The logic of building a fuzzy knowledge base to enable flexible adaptation of HR policies has been determined.
6. It has been confirmed that the use of fuzzy sets allows us to expand the boundaries of traditional approaches to personnel management.
7. Methodological principles of forming a fuzzy knowledge base are identified, which make the process of choosing an HR strategy more flexible and adaptive.

Practical recommendations based on the results of the study

It should be determined that we can recommend as a result to improve the practical activities of Ukrainian enterprises in the current conditions:

- apply the proposed approach to forming an HR strategy, taking into account the specifics of the industry and the structure of the enterprise;
- develop flexible HR solutions, based on the obtained fuzzy assessments of the state of financial security and personnel stability;
- constantly and very regularly update the knowledge base, adding new term sets that reflect the current challenges of the labour market;
- establish a system of internal monitoring of personnel risks, using fuzzy sets as an assessment tool;
- implement automated decision-making support systems based on fuzzy criteria and financial indicators;
- develop training programs for HR specialists to master the methodology of fuzzy assessments and data analysis.

ADDITIONAL INFORMATION

FUNDING

The Authors received no funding for this research.

CONFLICT OF INTEREST

The Authors declare that there is no conflict of interest.

REFERENCES

1. Abdullah, L., Jaafar, S., & Taib, I. (2013). Ranking human capital indicators using analytical hierarchy process. *Procedia – Social and Behavioral Sciences*, 107, 22–28. <https://doi.org/10.1016/j.sbspro.2013.12.394>
2. Andriušaitienė, D. (2013). Professional standards – possibilities to harmonize the needs of work world and education system. *Business: Theory and Practice*, 14(1), 17–26. <https://doi.org/10.3846/btp.2013.02>
3. Bielova, O. (2018). Personnel innovative activity and methods of its stimulation at the enterprise. *Scientific notes of the "KROK" University*, 3(51), 211–219. <https://doi.org/10.31732/2663-2209-2018-51-211-219>
4. Cherep, A., Adamenko, M., Cherep, O., & Dashko, I. (2023). The Influence of the Innovation Potential of Personnel on Strengthening Economic Security of Ukrainian Enterprises in the Post-War Period. *WSEAS Transactions on Business and Economics*, 20, 70–79. <https://doi.org/10.37394/23207.2023.20.8>
5. Igielski, M. (2015). Changes in personnel policies of enterprises conditioned by the identification of knowledge workers. *Management*, 19(2), 35–51. <https://doi.org/10.1515/manment-2015-0016>
6. Iovanella, A. (2024). Exploiting network science in business process management: A conceptual framework. *Chaos, Solitons and Fractals*, 178, 114344. <https://doi.org/10.1016/j.chaos.2023.114344>
7. Kauffeld, S., & Massenber, A.-C. (2018). Failure in Personnel Development. In: Kunert, S. (eds) *Strategies in Failure Management. Management for Professionals*. Springer, Cham. https://doi.org/10.1007/978-3-319-72757-8_8
8. Kokkaew, N., Jokkaw, N., Peansupap, V., & Wipulanusat, W. (2022). Impacts of human resource management and knowledge management on non-financial organizational performance: Evidence of Thai infrastructure construction firms. *Ain Shams Engineering Journal*, 13(6), Article 101750. <https://doi.org/10.1016/j.asej.2022.101750>
9. Kopytko, M., Liubokhynets, L., Kalinin, A., Sai, L., & Bala, O. (2023). Personnel management in the system of ensuring safety and security of the engineering enterprise in the conditions of industry 4.0. *International Journal of Safety and Security Engineering*, 13(3), 547–554. <https://doi.org/10.18280/ijssse.130317>
10. Gadzali, S. S., Gazalin, J., Sutrisno, S., Prasetya, Y. B., & Almaududi Ausat, A. M. (2023). Human Resource Management Strategy in Organisational Digital Transformation. *Jurnal Minfo Polgan*, 12(1), 760–770. <https://doi.org/10.33395/jmp.v12i1.12508>
11. Koval, N., Hlushchenko, L., & Piliavoz, T. (2019). Financial aspects of development of human resources of small and medium industrial enterprises in modern conditions. *Market infrastructure*, 34, 135–139. <https://doi.org/10.32843/infrastruct34-19>
12. Krasivskyy, O., Pirozhenko, N., Samborska, O., Harbusiuk, V., & Inozemtseva, O. (2023). A model for implementing digital personnel management in security and safety for engineering enterprises. *International Journal of Safety and Security Engineering*, 13(3), 519–526. <https://doi.org/10.18280/ijssse.130314>
13. Motorniuk, U., Synytsia, S., Dydiv, I., Lakiza, V., & Garmatiuk, O. (2023). Strategic guidelines for planning the sustainable development of the socio-economic system by ensuring effective personnel management in the economic security. *International Journal of Sustainable Development and Planning*, 18(4), 1161–1166. <https://doi.org/10.18280/ijssdp.180420>
14. Nordhaug, O. (2004). Contributions to an economic theory of human resource management. *Human Resource Management Review*, 14(4), 383–393. <https://doi.org/10.1016/j.hrmr.2004.10.002>
15. Saaty, R., Karpak, B., Rokou, E., Mu, E., & Ferretti, V. (2017). Our IJAHF Editorial Team Remembers Tom. *International Journal of the Analytic Hierarchy Process*, 9(2). <https://doi.org/10.13033/ijahp.v9i2.500>
16. State Statistics Service of Ukraine (2024). <https://www.ukrstat.gov.ua/>
17. Todoshchuk, A., Motorniuk, U., Skliaruk, T., Oliinyk, I., & Kornieieva, T. (2023). Modelling information systems for personnel management: Navigating economic security in the transition to Industry 5.0. *Ingénierie des Systèmes d'Information*, 28(3), 595–601. <https://doi.org/10.18280/isi.280307>
18. Uzule, K., Zarina, V., & Shina, I. (2024). Fostering performance management by identifying key performance indicators for human capital in integrated reporting. *Business: Theory and Practice*, 25(2), 420–433. <https://doi.org/10.3846/btp.2024.21351>
19. Zachosova, N.V., Kovalenko, A.O., & Kutsenko, D.M. (2022). Personnel policy in the mechanism of management of economic security under the conditions of the fourth industrial revolution. *ACADEMY REVIEW*, 2(57), 142–157. <https://doi.org/10.32342/2074-5354-2022-2-57-11>
20. Zadeh, L.A. (2004) Fuzzy sets. *Information and Control*, 8(3), 338–353. [https://doi.org/10.1016/S0019-9958\(65\)90241-X](https://doi.org/10.1016/S0019-9958(65)90241-X)
21. Zygmunt, A. (2022). The effect of research and development personnel on innovation activities of firms: Evidence from small and medium-sized enterprises from the Visegrad Group countries. *Entrepreneurial Business and Economics Review*, 10(3), 105–121. <https://doi.org/10.15678/EBER.2022.100307>

Вербова О.

ФОРМУВАННЯ МЕТОДИЧНОГО ПІДХОДУ ДО ВИБОРУ СТРАТЕГІЇ HR-МЕНЕДЖМЕНТУ ДЛЯ ЗАБЕЗПЕЧЕННЯ ФІНАНСОВОЇ БЕЗПЕКИ ПІДПРИЄМСТВА

В умовах сьогодення кадрова безпека вийшла на зовсім інший рівень. Проблема управління людськими ресурсами на підприємстві не лише все більше стає вагомим фактором визначення рівня економічної безпеки, а й має безпосередній вплив на фінансовий стан і захист фінансових інтересів. У таких умовах HR-менеджмент – це ключовий елемент будь-якої стратегії безпекового розвитку підприємства. При цьому від вибору самої стратегії залежить і стратегія забезпечення фінансової безпеки. Відтак, уважаємо за потрібне сформуванню належного методичного підходу, який дозволить, базуючись на отриманих результатах, обирати правильно стратегію HR-менеджменту з метою забезпечення фінансової безпеки підприємства. З такою ціллю ключовим об'єктом слід уважати не лише параметри для вибору стратегії HR-менеджменту на підприємстві, але й фінансову безпеку зокрема. Ми сформували чітку послідовність вибору та обґрунтування оптимальної стратегії HR-менеджменту з метою забезпечення фінансової безпеки підприємства. При цьому в результаті аналізу найбільш відомих методів вирішення багатокритеріальних задач ми обрали саме метод теорії нечітких множин Заде, який закладе основу запропонованого методичного підходу. Виокремлено ключові терм-множини для визначення ступенів належності. Результати нечітких множин уможливили побудову графіків функцій належності. Це, у свою чергу, дозволило сформуванню нечіткої бази знань для вибору оптимальної стратегії HR-менеджменту з метою забезпечення фінансової безпеки підприємства. Детальне обґрунтування всіх компонентів сформованого методичного підходу дозволило твердити про можливість його практичного застосування в подальшій діяльності сучасних українських підприємств.

Ключові слова: методичний підхід, стратегічний підхід, HR-менеджмент, фінансова безпека, діяльність підприємств, фінансовий стан, кадрова безпека, HR-стратегія, лінгвістична змінна

JEL Класифікація: M12, M54