

Result: PLAGIARISM DETECTED

Plagiarism Detected: 83.88%

Text to analyze: «»¿ The main idea of this paper is the substantiation of the methodological approach to the assessment of personnel risks of enterprises based on the application of the fuzzy logic apparatus in order to identify the problems of personnel risk management and provide appropriate recommendations for their solution. The methodological basis of the study is the classic provisions and fundamental works of foreign and domestic scientists, statistical data, the results of our research into the problems of assessing personnel risks of enterprises. The methods of fuzzy set theory, comparative analysis, scientific abstraction, generalization of scientific experience of modern theoretical research, systemcomplex approach were used. The study proposed a methodological approach to assessing the level of personnel risks of an enterprise; numerical experiments were conducted on the basis of a group of construction equipment manufacturers. Analysis of the results of assessing the level of personnel risks of enterprises made it possible to identify the problems of managing personnel risks at enterprises Statement of a mathematical problem: the work considers hierarchical fuzzy data, namely: four groups of indicators for assessing the level of personnel risks (quantitative composition « F1, state of qualifications and intellectual potential « F2, staff turnover « F3, motivational system « F4), each of the indicators has a different number of fuzzy coefficients (there are twelve of them in the current work « v_i , $i=1\tilde{A}12$). Indicators are functions of fuzzy coefficients: $F1 = r(v1, v2, v3)$; $F2 = g(v4, v5, v6, v7)$; $F3 = h(v8, v9, v10,)$; $F4=q(v11, v12)$. As an output variable, there is a functional « an integrated indicator $Int = f(F1, F2, F3, F4)$ of the personnel risk level, which, in turn, is also a fuzzy value. Here, the functions r, g, h, q, f are unknown functions of the given variables. We have expert evaluations of the change in all input data; as a rule, they vary within three terms: Low (I), Medium (G), High (E). Formalized information on each variable can be written as , then for a group of indicators we have: . Using a fuzzy system and performing calculations with its help requires the system to have the following structural elements:

membership functions of input and output variables, a rule base, and an output mechanism. These structural elements are the components that will be built when designing a fuzzy system. The built mathematical model and the method of its formalization on the basis of FST make it possible to estimate the level of personnel risk at the enterprise, which enables further substantiation of a set of measures to increase the efficiency of its use. The constructed system of fuzzy logical inference can be considered intelligent as it uses elements of computational intelligence, in particular, the theory of fuzzy sets. The proposed methodological approach to assessing the level of personnel risks of enterprises based on the apparatus of fuzzy logic allows, in contrast to existing ones, to integrate the consideration of both qualitative and quantitative indicators when assessing the level of personnel risks and personnel movement indicators and to significantly increase the efficiency of decision-making under conditions of uncertainty and reduce costs in the event of adverse situations. This paper substantiates a methodological approach to assessing personnel risks in enterprises using fuzzy logic. The goal is to identify and provide recommendations for managing personnel risk problems. The study's foundation includes classic provisions of foreign and domestic scientists, statistical data, and the team's own research. Methods such as fuzzy set theory, comparative analysis, scientific abstraction, generalization of modern theoretical research, and a system-complex approach were employed. The study proposes a methodological approach to assessing personnel risk levels, exemplified by a group of construction equipment manufacturers. It considers hierarchical fuzzy data comprising four groups of indicators: quantitative composition (F1), state of qualifications and intellectual potential (F2), staff turnover (F3), and motivational system (F4). Each indicator has fuzzy coefficients ($v_i, i=1\text{--}12$), and the output variable is an integrated indicator Int , representing the personnel risk level. The paper introduces unknown functions r, g, h, q, f as functions of fuzzy coefficients, reflecting expert evaluations of input data changes (Low, Medium, High). The study utilizes a fuzzy system with structural elements including membership functions, a rule base, and an output mechanism. This system allows for estimating personnel risk levels and justifying measures to enhance efficiency. The fuzzy logical inference system is considered intelligent as it employs computational intelligence elements, particularly fuzzy set

theory. This methodological approach integrates qualitative and quantitative indicators, enhancing decision-making efficiency under uncertainty and reducing costs during adverse situations, distinguishing it from existing methods.

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