

**Texto original:** «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.

**Texto plagiado:** «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.

**Texto original:** personnel risk

**Texto plagiado:** personnel risk

**Texto original:** fuzzy logic

**Texto plagiado:** fuzzy logic

**Texto original:** fuzzy logic a

**Texto plagiado:** fuzzy logic a

**Texto original:** e recommendations for

**Texto plagiado:** e recommendations for

**Texto original: methodological approach to**

**Texto plagiado: methodological approach to**

**Texto original: personnel risk**

**Texto plagiado: personnel risk**

**Texto original: personnel risk**

**Texto plagiado: personnel risk**

**Texto original: he fuzzy logic**

**Texto plagiado: he fuzzy logic**

**Texto original: methodological approach**

**Texto plagiado: methodological approach**

**Texto original: 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.**

**Texto plagiado: 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.**

**Texto original: personnel risk**

**Texto plagiado: personnel risk**

**Texto original: ing personnel risk**

**Texto plagiado: ing personnel risk**

**Texto original: s of foreign and domestic scientists, statistical data,**

**Texto plagiado: s of foreign and domestic scientists, statistical data,**

**Texto original: assessing personnel risk**

**Texto plagiado: assessing personnel risk**

**Texto original: personnel risk**

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**Texto original: ing personnel risk**

**Texto plagiado: ing personnel risk**

**Texto original:** The methods of fuzzy set theory, comparative analysis, scientific abstraction, generalization of scientific experience of modern theoretical research, systemcomplex approach were used.

**Texto plagiado:** The methods of fuzzy set theory, comparative analysis, scientific abstraction, generalization of scientific experience of modern theoretical research, systemcomplex approach were used.

**Texto original:** of fuzzy set

**Texto plagiado:** of fuzzy set

**Texto original:** fuzzy set theory, comparative analysis, scientific abstraction, generalization of

**Texto plagiado:** fuzzy set theory, comparative analysis, scientific abstraction, generalization of

**Texto original:** fuzzy set theory

**Texto plagiado:** fuzzy set theory

**Texto original:** 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.

**Texto plagiado:** 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.**

**Texto original: personnel risk**

**Texto plagiado: personnel risk**

**Texto original: personnel risk**

**Texto plagiado: personnel risk**

**Texto original: a group of construction equipment manufacturers.**

**Texto plagiado: a group of construction equipment manufacturers.**

**Texto original: personnel risk**

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**Texto plagiado: personnel risk**

**Texto original: methodological approach**

**Texto plagiado: methodological approach**

**Texto original:** 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  $\hat{\in}$  F1, state of qualifications and intellectual potential  $\hat{\in}$  F2, staff turnover  $\hat{\in}$  F3, motivational system  $\hat{\in}$  F4), each of the indicators has a different number of fuzzy coefficients (there are twelve of them in the current work  $\hat{\in}$   $v_i$  ,  $i=1\tilde{A}12$ ).

**Texto plagiado:** 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

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**Texto original:** of fuzzy coefficients

**Texto plagiado:** of fuzzy coefficients

**Texto original:** personnel risk

**Texto plagiado:** personnel risk

**Texto original:** managing personnel risk

**Texto plagiado:** managing personnel risk

**Texto original: ing personnel risk**

**Texto plagiado: ing personnel risk**

**Texto original: considers hierarchical fuzzy data**

**Texto plagiado: considers hierarchical fuzzy data**

**Texto original: fuzzy coefficients (**

**Texto plagiado: fuzzy coefficients (**

**Texto original: of fuzzy coefficients**

**Texto plagiado: of fuzzy coefficients**

**Texto original: ing personnel risk**

**Texto plagiado: ing personnel risk**

**Texto original: Indicators are functions of fuzzy coefficients:  $F1 = r(v1, v2, v3)$ ;  $F2 = g(v4, v5, v6, v7)$ ;  $F3 = h(v8, v9, v10,)$ ;  $F4=q(v11, v12)$ .**

**Texto plagiado: Indicators are functions of fuzzy coefficients:  $F1 = r(v1, v2, v3)$ ;  $F2 = g(v4, v5, v6, v7)$ ;  $F3 = h(v8, v9, v10,)$ ;  $F4=q(v11, v12)$ .**

**Texto original: ions of f**

**Texto plagiado: ions of f**

**Texto original: fuzzy coefficients**

**Texto plagiado: fuzzy coefficients**

**Texto original: functions of fuzzy coefficients**

**Texto plagiado: functions of fuzzy coefficients**

**Texto original: 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.**

**Texto plagiado: 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.**

**Texto original: personnel risk**

**Texto plagiado: personnel risk**

**Texto original: personnel risk level**

**Texto plagiado: personnel risk level**

**Texto original: an integrated indicator  $Int$**

**Texto plagiado: an integrated indicator  $Int$**



**Texto original:** personnel risk level

**Texto plagiado:** personnel risk level

**Texto original:** Here, the functions  $r$ ,  $g$ ,  $h$ ,  $q$ ,  $f$  are unknown functions of the given variables.

**Texto plagiado:** Here, the functions  $r$ ,  $g$ ,  $h$ ,  $q$ ,  $f$  are unknown functions of the given variables.

**Texto original:** functions  $r$ ,  $g$ ,  $h$ ,  $q$ ,  $f$  a

**Texto plagiado:** functions  $r$ ,  $g$ ,  $h$ ,  $q$ ,  $f$  a

**Texto original:** 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).

**Texto plagiado:** 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).

**Texto original:** expert evaluations of

**Texto plagiado:** expert evaluations of

**Texto original:** Formalized information on each variable can be written as , then for a group of indicators we have: .

**Texto plagiado:** Formalized information on each variable can be written as , then for a group

**of indicators we have: .**

**Texto original: output variable**

**Texto plagiado: output variable**

**Texto original: 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.**

**Texto plagiado: 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.**

**Texto original: structural elements**

**Texto plagiado: structural elements**

**Texto original: output variable**

**Texto plagiado: output variable**

**Texto original: tions of input**

**Texto plagiado: tions of input**

**Texto original:** s, a rule base, and an output mechanism.

**Texto plagiado:** s, a rule base, and an output mechanism.

**Texto original:** e system

**Texto plagiado:** e system

**Texto original:** ing a fuzzy system

**Texto plagiado:** ing a fuzzy system

**Texto original:** These structural elements are the components that will be built when designing a fuzzy system.

**Texto plagiado:** These structural elements are the components that will be built when designing a fuzzy system.

**Texto original:** structural elements

**Texto plagiado:** structural elements

**Texto original:** personnel risk

**Texto plagiado:** personnel risk

**Texto original:** e built

**Texto plagiado: e built**

**Texto original: 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.**

**Texto plagiado: 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.**

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**Texto original: fuzzy logic**

**Texto plagiado: fuzzy logic**

**Texto original: of fuzzy set**

**Texto plagiado: of fuzzy set**

**Texto original: 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.**

**Texto plagiado: 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.**

**Texto original: of fuzzy logic**

**Texto plagiado: of fuzzy logic**

**Texto original: fuzzy set**

**Texto plagiado: fuzzy set**

**Texto original: considered intelligent as it**

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**Texto original: fuzzy logic a**

**Texto plagiado: fuzzy logic a**

**Texto original: personnel risk**

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**Texto original: indicators w**

**Texto plagiado: indicators w**

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**Texto original: of fuzzy logic**

**Texto plagiado: of fuzzy logic**

**Texto original: 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.**

**Texto plagiado: 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.

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**Texto original:** methodological approach to assessing

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**Texto original:** personnel risk

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