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AN INTEGRATED SWOT – FUZZY PIPRECIA MODEL FOR ANALYSIS OF COMPETITIVENESS IN ORDER TO IMPROVE LOGISTICS PERFORMANCES

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Abstract. *On the question: how to react in a particular situation, the management of the company must have a quick answer. In the time of fast and huge changes in production, the management must know what resources are available in the company and what kind of environment it faces. To respond promptly to the requirements of the environment, the company must define a clear strategy for its business. To define a strategy, management must know the state of the company. From these reasons, in this research it was conducted SWOT analysis of specific company, and after that the elements of the SWOT matrix were ranked using fuzzy PIPRECIA method. This ranking shows on which element company should pay the most attention.*

Key words: *Transport company, Environment, SWOT, Fuzzy PIPRECIA*

1. INTRODUCTION

In order to achieve the set goals of the company, it is necessary to establish a correlation between internal and external factors. Management must have a relationship with the environment that allows that the company define the right goals, operate in accordance with opportunities and respond to new opportunities and dangers that occur in the environment. Therefore, management must define the business strategy. Based on the strategy, management decides what and how many resources need to be engaged in order to achieve the goals in the best possible way. In this research, a SWOT analysis of a particular company was done. Based on this analysis, obtained data showing the current

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state of the company. The strengths and weaknesses of the interior were examined, as well as the opportunities and threats that came from the enterprise environment.

The most often used method of analyzing the state of the company is SWOT analysis, which can be seen from the numerous literature that deals with this topic. Rothaermel [1] states in his book that SWOT analysis is used for strategic decisions making. SWOT analysis is widely used in different companies and for different decisions making in companies. A large number of researchers from different fields use SWOT analysis. Novikov [2] formulated a standard technological model of comprehensive strategic analysis and outlined the methodology for its systematic implementation in practice. Zivkovic et al. [3] demonstrated a process for quantitative SWOT analysis that can be performed even when there is dependence among strategic factors. Bohari et al. [4] analyzed the competitiveness of the halal food business in Malaysia using the ICT-aided SWOT analysis techniques. Düking et al. [5] have performed a short SWOT analysis of virtual reality systems for athletes. SWOT analysis is often used for strategic planning and strategic decision making. Kolbina [6] use SWOT analysis as a strategic planning tool for companies in the food industry. Shi [7] use SWOT analysis to estimate competing outlooks for energy mix in the Association of Southeast Asian Nations (ASEAN). Mondal and Haque [8] map out a way to sustainable growth of the tourism industry in Bangladesh using the SWOT analysis. Gupta and Mishra [9] demonstrate a SWOT analysis for different 19 frameworks of RCM to make a strategic decision for implementing RCM in different organizations. Štěrbová et al. use SWOT analysis to determine the innovation strategy of contractor firms in the Slovak forestry service sector in the area of further innovation activities development [10]. Therefore, we can observe SWOT analysis as a tool that helps management of the company to make decisions. Kuo et al. [11] performed SMART SWOT strategic planning analysis in the hospitality industry. Valverde et al. [12], Yan et al. [13] and Jasiulewicz-Kaczmarek [14] performed SWOT analysis as a method that helps management to make decisions. Comino and Ferretti [15] using SWOT analysis for strategic planning. SWOT analysis is used in combination with other methods to enable more precisely decision making. There is a great number of research where we can see the combination of certain methods with SWOT analysis. Abdel-Basset et al. [16] formed a model for strategic planning and decision-making combining AHP and SWOT methods. Korableva and Kalimullina [17] formed BSC-SWOT matrix and applied it to the optimization of organization. Akhavan et al. [18] use combination of FQSPM-SWOT for strategic alliance planning and partner selection in a holding car manufacturer company. Wang et al. [19] used analysis based on ANP and SWOT for strategic choices of China's new energy vehicle industry. Bartusková and Kresta [20] using combination of AHP method and SWOT analysis in external strategic analysis of the selected organization. Zhao et al. [21] use ANP-SWOT approach to find a way of rare earth industry of China. Pazouki et al. [22] analyze strategic management in urban environment using SWOT and QSPM model. Hatefi [23] using an integrated SWOT and fuzzy COPRAS approach for strategic planning of urban transportation system.

Fuzzy PIPRECIA is a recently developed method [24]. It is used in multi-criteria decision-making. Marković et al. [25] developed a novel integrated model that involves the application of a subjective-objective model in order to achieve business sustainability and excellence. Đalić et al. [26] presented a novel integrated fuzzy – rough Multi-Criteria Decision-Making (MCDM) model based on integration fuzzy and interval rough set theory. Veskovićet al. [27] determined criteria significance in selecting reach stackers by applying the fuzzy PIPRECIA method. Tomašević et al. [28], Vesković et al. [29] and Stanković et al. [30] using Fuzzy PIPRECIA to evaluate and select criteria for decision making.

After the introduction, a review of the literature was carried out, that is, research of the current papers in this field. The third part of the paper deals with the results of fuzzy PIPRECIA method. This method defines the most important element of SWOT matrix and based on this management can decide on which element should pay the most attention. The last part of the paper is about concluding considerations with directions for future research.

The aims of the paper are: perform a detailed analysis of the current business of the company, define corrective measures and formulate strategies for the future operations of the company. Based on the results of the research, the management of the company will be able to decide what is the next best step in the business. Besides, this study is the first which introducing the integration of SWOT analysis and Fuzzy PIPRECIA method. This is one of the main novelty of the paper.

2. METHODS

The decision-making methodology used in this paper consists of five phases (Fig. 1). In the first phase, data were collected from a particular company. At this stage, the current state of the enterprise is defined. Based on the current situation, a SWOT matrix was formed where internal strengths and weaknesses of the enterprise were defined, as well as opportunities and threats from the external environment of the enterprise. After this, the second phase is approached, where, based on the Fuzzy PIPRECIA method, elements of the SWOT matrix are ranked. Based on this rank the most important element has been determined.

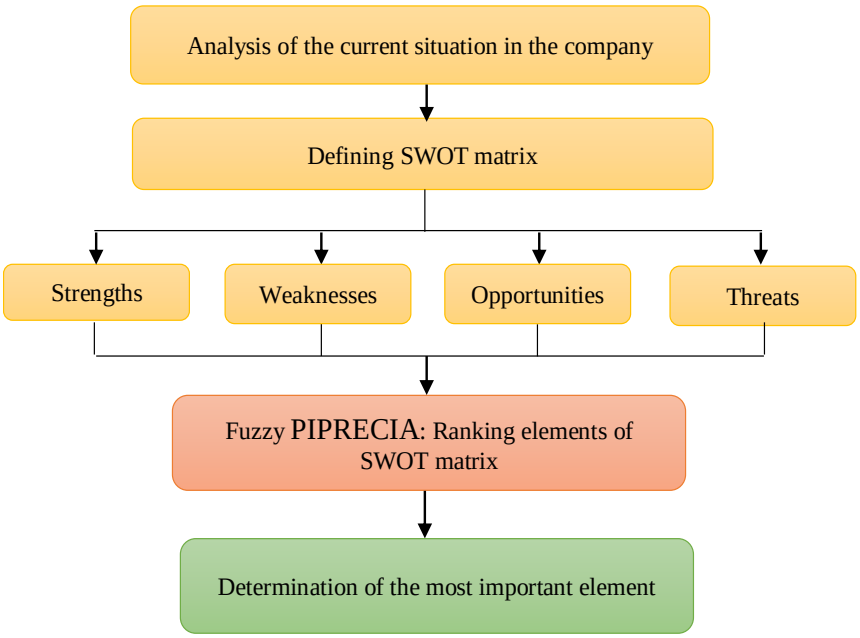

Fig. 1 The decision-making methodology

The explanations and steps of all the methods used in this research are presented below.

2.1. Operation with fuzzy numbers

Fuzzy number $\overline{A}$ moves at interval $\mu_{\overline{A}}(x)$: R→[0,1] :

$$\mu_{\overline{A}}(x)=\begin{cases}\dfrac{x-l}{m-l} & l\le x\le m\\ \dfrac{u-x}{u-m} & m\le x\le u\\ 0 & otherwise\end{cases} \tag{1}$$

In the Eq. (1), l and u are the lower and upper bounds of fuzzy number $\overline{A}$, and m is the modal value for $\overline{A}$. TFN (triangle fuzzy number) can be denoted by $\overline{A}=(l,m,u)$.

Operations TFN $\overline{A}=(l_1,m_1,u_1)$ and $\overline{A}=(l_2,m_2,u_2)$ are shown as the following equations [27, 31, 32]:

Adding:

$$\overline{A_1}+\overline{A_2}=(l_1,m_1,u_1)+(l_2,m_2,u_2)=(l_1+l_2,m_1+m_2,u_1+u_2) \tag{2}$$

Multiplication:

$$\overline{A_1}\times\overline{A_2}=(l_1,m_1,u_1)\times(l_2,m_2,u_2)=(l_1\times l_2,m_1\times m_2,u_1\times u_2) \tag{3}$$

Subtraction:

$$\overline{A_1}-\overline{A_2}=(l_1,m_1,u_1)-(l_2,m_2,u_2)=(l_1-u_2,m_1-m_2,u_1-l_2) \tag{4}$$

Fraction:

$$\frac{\overline{A_1}}{\overline{A_2}}=\frac{(l_1,m_1,u_1)}{(l_2,m_2,u_2)}=\left(\frac{l_1}{u_2},\frac{m_1}{m_2},\frac{u_1}{l_2}\right) \tag{5}$$

Reciprocally:

$$\overline{A_1}^{-1}=(l_1,m_1,u_1)^{-1}=\left(\frac{1}{u_1},\frac{1}{m_1},\frac{1}{l_1}\right) \tag{6}$$

2.2. Fuzzy PIvot Pairwise RElative Criteria Importance Assessment – fuzzy PIPRECIA metoda

The main advantage of the PIPRECIA [33] method is that it allows criteria to be evaluated without sorting criteria by significance first, which is not the case with the SWARA method [34]. Today, most multi-criteria decision-making problems are solved by applying group decision-making. In such cases, especially as the number of decision-makers involved in the fuzzy PIPRECIA model increases, achieves its benefits. The Fuzzy PIPRECIA method was developed by [24]. It consists of 11 steps shown below.

Step 1. Forming the required benchmarking set of criteria and forming a team of decision-makers. Sorting the criteria according to marks from the first to the last, which

means they need to be sorted unclassified. Therefore, in this step, their significance is irrelevant.

Step 2. In order to determine the relative importance of criteria, each decision-maker individually evaluates the pre-sorted criteria by starting from the second criterion, Eq. (7).

$$\overline{s_j^r} = \begin{cases} > \bar{1} & if \quad C_j > C_{j-1} \\ = \bar{1} & if \quad C_j = C_{j-1} \\ < \bar{1} & if \quad C_j < C_{j-1} \end{cases} \tag{7}$$

s_j^r denotes the evaluation of the criteria by a decision-maker *r*. In order to obtain a matrix s_j it is necessary to perform the averaging of matrix s_j^r using a geometric mean. Decision-makers evaluate criteria by applying defined scales in Tables 1 and 2.

The second and third steps of the developed method are in close dependence and new fuzzy scales are defined to meet the second and third step of the fuzzy PIPRECIA method. If it is taken into account that the nature of fuzzy number operations and the fact that, in the third step, the values s_j are subtracted from the number two, it is required to define these scales. It is important to note that by defining these scales, the appearance of number two is avoided, which in the case of calculation could cause difficulties and wrong results. Therefore, no other fuzzy scales could be used that have been previously developed, but only the scales defined in this paper.

Table 1 Scale 1-2 for the assessment of criteria

			l	m	u	DFV
Almost equal value	Scale 1-2	1	1.000	1.000	1.050	1.008
Slightly more significant		2	1.100	1.150	1.200	1.150
Moderately more significant		3	1.200	1.300	1.350	1.292
More significant		4	1.300	1.450	1.500	1.433
Much more significant		5	1.400	1.600	1.650	1.575
Dominantly more significant		6	1.500	1.750	1.800	1.717
Absolutely more significant		7	1.600	1.900	1.950	1.858

When the criterion is of greater importance in relation to the previous one, assessment is made using the above scale in Table 2. In order to make decision-makers easier to evaluate the criteria, the table shows the defuzzified value (DFV) for each comparison.

Table 2 Scale 0-1 for the assessment of criteria

	l	m	u	DFV	
Scale 0-1	0.667	1.000	1.000	0.944	Weakly less significant
	0.500	0.667	1.000	0.694	Moderately less significant
	0.400	0.500	0.667	0.511	Less significant
	0.333	0.400	0.500	0.406	Really less significant
	0.286	0.333	0.400	0.337	Much less significant
	0.250	0.286	0.333	0.288	Dominantly less significant
	0.222	0.250	0.286	0.251	Absolutely less significant

When the criterion is of less importance compared to the previous one, assessment is made using the above-mentioned scale in Table 2.

Step 3. Determining the coefficient $\overline{k_j}$

$$\overline{k_j} = \begin{cases} =\bar{1} & if \quad j=1 \\ 2-\overline{s_j} & if \quad j>1 \end{cases} \tag{8}$$

Step 4. Determining the fuzzy weight $\overline{q_j}$

$$\overline{q_j} = \begin{cases} =\bar{1} & if \quad j=1 \\ \dfrac{\overline{q_{j-1}}}{\overline{k_j}} & if \quad j>1 \end{cases} \tag{9}$$

Step 5. Determining the relative weight of the criterion $\overline{w_j}$

$$\overline{w_j} = \frac{\overline{q_j}}{\sum_{j=1}^{n} \overline{q_j}} \tag{10}$$

In the following steps, it is necessary to apply the inverse methodology of the fuzzy PIPRECIA method.

Step 6. Evaluation of the applying scale defined above, but this time starting from a penultimate criterion.

$$\overline{s_j^r}' = \begin{cases} >\bar{1} & if \quad C_j > C_{j+1} \\ =\bar{1} & if \quad C_j = C_{j+1} \\ <\bar{1} & if \quad C_j < C_{j+1} \end{cases} \tag{11}$$

$\overline{s_j^r}'$ denotes the evaluation of the criteria by a decision-maker *r*.

It is again necessary to average the matrix $\overline{s_j^r}'$ by applying a geometric mean.

Step 7. Determining the coefficient $\overline{k_j}'$

$$\overline{k_j}' = \begin{cases} =\bar{1} & if \quad j=n \\ 2-\overline{s_j}' & if \quad j>n \end{cases} \tag{12}$$

n denotes a total number of criteria. Specifically, in this case, it means that the value of the last criterion is equal to fuzzy number one.

Step 8. Determining the fuzzy weight $\overline{q_j}'$

$$\overline{q_j}' = \begin{cases} =\bar{1} & if \quad j=n \\ \dfrac{\overline{q_{j+1}}'}{\overline{k_j}'} & if \quad j>n \end{cases} \tag{13}$$

Step 9. Determining the relative weight of the criterion $\overline{w_j}'$

$$\overline{w_j}' = \frac{\overline{q_j}'}{\sum_{j=1}^{n} \overline{q_j}'} \tag{14}$$

Step 10. In order to determine the final weights of the criteria, it is first necessary to perform the defuzzification of the fuzzy values $\overline{w_j}$ and $\overline{w_j}'$.

$$\overline{w_j}'' = \frac{1}{2}(w_j + w_j') \tag{15}$$

Step 11. Checking the results obtained by applying Spearman and Pearson correlation coefficients.

3. CASE STUDY

When analyzing the internal and external environment of company, it is easiest to use SWOT analysis. SWOT analysis provides data through four elements of the matrix - strengths and weaknesses, as internal factors and opportunities and threats, as external factors of influence on the business of the company (Table 3). Internal factors are those within the company and on which, management, along with other employees in the company, can make an impact. External factors include those that cannot be influenced by management and employees. Therefore, managers and employees cannot influence the occurrences that coming from the external environment of the company by their decisions and activities.

Table 3 Elements of SWOT analysis

Internal factors	
Strengths (+)	Weaknesses (-)
1. Modern trucks and the ability to respond to all requests	1. Disloyalty of employee s
2. Worker motivation	2. Workers' omissions (information of exponents, etc.)
3. Professional employees and years of experience	3. Close relationship in communication between owner and worker
4. Offices in EU and organization and responsibility (family business)	4. Cost optimization
5. Recognition by brand	5. Absence of test moves (employee evaluations)
6. Cost optimization	6. Need for one administrative worker
External factors	
Opportunities (+)	Threats (-)
1. Expanding business	1. Closing other companies
2. Infrastructure growth	2. Growth of levies
3. Association	3. Unexpected problems from the ground
4. EU funds	4. Unloyal competition
5. Training course through Eco trainings	5. EU restrictions (CEMT, etc.)
	6. Fluctuation of labor

Based on the elements in Table 3, it is the most easily to see what is represented as strength and what as weakness in the company, as well as what from the external environment of the company presents opportunity and what is a threat. The table shows six elements that are listed as the strength of the enterprise. All transport vehicles owned and operated by the company are the newer models. The company has enough transport and human resources to respond to all requests of service users. The company motivates employees to work and stay as long as possible in the company with rewards after a certain period spent in the company. The company has been in business for 20 years and has exclusively professional drivers trained for their business. The company operates as a very organized and responsible family-owned company that has opened offices in the EU. Through years of successful business, the company has built its brand that is recognizable in the country as well as abroad. Thanks to the experience and expertise of employees of the company, the conditions for satisfactory cost management have been created. After the mentioned strengths, the SWOT analysis also lists 6 weaknesses that the company wants to overcome. The big problem is that despite the good conditions in the company, workers often leave their jobs and look for another job. Another problem is the untimely provision of information to managers by workers. The company management is intimate with the employees and cannot objectively perceive certain problems. Despite good management of cost, there is space to reduce fuel consumption, which would streamline costs in the further. There is no adequate way of valuing workers in the company, what is a significant problem. The company needs one administrative worker to relieve the dispatchers of a particular administrative job. The second part of the SWOT analysis is related to external factors that affect the business of the company. Opportunities that come from the environment the company seeks to exploit, and the threats to bypass or reduce. Five opportunities are listed. The company should take the opportunity to expand its business and, based on its experience and recognizable brand, expand its business to as many users of its services as possible. In recent years, there has been a development of transport infrastructure in the domestic market, what company should use as an opportunity to develop its business in the country. Today, there is the possibility of associating companies around a common interest to achieve it in a much easier way than acting individually. Within the framework of the activities of the EU institutions, there are funds aimed at developing the economy at all levels and in all activities, and the company should use the opportunity to apply for them. Recently, Eco trainings for drivers have been organized, where drivers acquire skills of vehicle control with saving fuel consumption up to 15%, what is a very good opportunity for the company to rationalize costs in this way. Further, the SWOT analysis also identifies six threats that the company seeks to minimize. Due to the reduced volume of work or for some other reasons, there are closures of other companies in the branch of activity of a given enterprise and of course there is always a certain a dose of caution. The company is constantly faced with increasing levies both at home and abroad, what is very difficult to monitor financially. When transporting, drivers are often confronted with certain problems on the ground, such as sudden breakdowns, traffic problems, etc. As in any industry, there are those who are called unfair competition and who in some way take users from companies that legally serve the market. The EU is constantly introducing additional transport restrictions in the form of certain permits, so the company must respond to these challenges on time in order to carry out its activities. Fluctuation of labor is present in the world market as well as in the domestic market, what is a significant problem that hinders a

undisturbed and continuous work process. All these threats the company need to deal with in the best possible way, using its internal strengths and opportunities from the environment.

For the sake of objectivity, SWOT analysis is carried out by management of the company together with independent external consultants. Based on the SWOT analysis, strategies are created that minimizing threats from the environment by using the strengths of the enterprise and minimizing the weaknesses in the enterprise by taking advantage of the opportunities. The aim of SWOT analysis is to maximize strengths and opportunities by minimizing weaknesses and threats, and minimizing weaknesses and threats by maximizing strengths and opportunities. SWOT analysis provides a good analytical basis for management to get a clear picture of the company and the external environment in which it operates. In this way it provides a realistic basis for defining strategies for improving the business of the company. Based on the SWOT analysis, the assumption is that the organization will be achieved the greatest strategic success by maximizing its own strengths and opportunities in the environment while minimizing threats and weaknesses. the analysis of the concurrence of internal and external factors, that is, determining their impact on each strategy is also very important. Thus, internal strengths and weaknesses should be observe in the context of external opportunities and threats and vice versa.

Criteria evaluation was performed using a linguistic scale that involves quantification into fuzzy triangle numbers. Table 4 shows the evaluation of the criteria for fuzzy PIPRECIA and Inverse fuzzy PIPRECIA by the decision maker.

Table 4 Criteria ratings for fuzzy PIPRECIA and Inverse fuzzy PIPRECIA

PIPR.	C1		C2			C3			C4	
DM		0.500	0.667	1.000	0.400	0.500	0.667	1.100	1.150	1.200
PIPR-I	C4		C3			C2			C1	
DM		1.000	1.000	1.050	0.286	0.333	0.400	1.200	1.300	1.350

Based on the evaluation of criteria and Eq. (1), a matrix *sj* is formed.

$$s_j = \begin{bmatrix} & \cdots & \\ 0.500 & 0.667 & 1.000 \\ 0.400 & 0.500 & 0.667 \\ 1.100 & 1.150 & 1.200 \end{bmatrix}$$

Applying Eq. (6), the values of the matrix *kj'* are obtained:

$$k_j^{'} = \begin{bmatrix} 0.800 & 0.850 & 0.900 \\ 0,650 & 0.700 & 0.800 \\ 1.000 & 1.333 & 1.500 \\ 1.000 & 1.000 & 1.000 \end{bmatrix}$$

$$\overline{k_4^{'}} = (1.000, 1.000, 1.000)$$

$$\overline{k_3^{'}} = (2 - 1.000, 2 - 0.667, 2 - 0.500) = (1.000, 1.333, 1.500) \text{ etc.}$$

Applying Eq. (7), the following values are obtained:

$$q_j = \begin{bmatrix} 0.926 & 1.261 & 1.923 \\ 0.833 & 1.071 & 1.538 \\ 0.667 & 0.750 & 1.000 \\ 1.000 & 1.000 & 1.000 \end{bmatrix}$$

$$\overline{q_4'} = (1.000, 1.000, 1.000)$$

$$\overline{q_3'} = \left(\frac{1.000}{1.500}, \frac{1.000}{1.333}, \frac{1.000}{1.000}\right) = (1.667, 0.750, 1.000)$$

After that, it is necessary to apply Eq. (8) to obtain the relative weights for the fuzzy Inverse PIPRECIA method.

$$\overline{w_4'} = \left(\frac{1.000}{5.461}, \frac{1.000}{4.082}, \frac{1.000}{3.426}\right) = (0.183, 0.245, 0.292)$$

The results of the applied methodology are presented in Table 5.

Using Eq. (9), the final weights of the criteria are obtained. Before applying this Eq., it is necessary to defuzzy the values of the criteria obtained by applying Eqs. (1) - (9). Table 5 shows the complete previous calculation.

Table 5 Weights of values of criteria

PIPR.		sj			kj				
C1				1.000	1.000	1.000			
C2	0.500	0.667	1.000	1.000	1.333	1.500			
C3	0.400	0.500	0.667	1.333	1.500	1.600			
C4	1.100	1.150	1.200	0.800	0.850	0.900			
		qj			wj		Def.	wj	Rank
C1	1.000	1.000	1.000	0.271	0.352	0.393	0.345	0.337	**1**
C2	0.667	0.750	1.000	0.181	0.264	0.393	0.272	0.274	**2**
C3	0.417	0.500	0.750	0.113	0.176	0.295	0.185	0.188	**4**
C4	0.463	0.588	0.938	0.126	0.207	0.368	0.220	0.231	**3**
PIPR.–I		sj			kj				
C1	1.100	1.150	1.200	0.800	0.850	0.900			
C2	1.200	1.300	1.350	0.650	0.700	0.800			
C3	0.500	0.667	1.000	1.000	1.333	1.500			
C4				1.000	1.000	1.000			
		qj			wj		Def.		
C1	0.926	1.261	1.923	0.170	0.309	0.561	0.328		
C2	0.833	1.071	1.538	0.153	0.262	0.449	0.275		
C3	0.667	0.750	1.000	0.122	0.184	0.292	0.191		
C4	1.000	1.000	1.000	0.183	0.245	0.292	0.242		

Spearman's [35,36] coefficient of correlation for the obtained ranks is 1.00 what means that these ranks are in complete correlation. Spearman's coefficient is used to determine the correlation of the obtained ranks. Pearson's [24] correlation coefficient for the weights of the criteria was also calculated and it is 0.985. The Pearson's coefficient is used to determine the correlation of the values of the criteria obtained by both methods. Table 6 presents the final results of weights using the fuzzy PIPRECIA method.

Table 6 Ranking elements by FUZZY PIPRECIA method

0.337 STRENGTHS			Rank	0.274 WEAKNESSES			Rank
C1	0.305	0.103	1	C1	0.249	0.068	3
C2	0.141	0.048	9	C2	0.120	0.033	18
C3	0.151	0.051	8	C3	0.145	0.040	15
C4	0.172	0.058	4	C4	0.210	0.058	5
C5	0.207	0.070	2	C5	0.173	0.047	10
C6	0.121	0.041	14	C6	0.143	0.039	16
0.188 OPPORTUNITIES			Rank	0.231 THREATS			Rank
C1	0.281	0.053	7	C1	0.196	0.045	12
C2	0.164	0.031	21	C2	0.199	0.046	11
C3	0.236	0.044	13	C3	0.117	0.027	23
C4	0.162	0.030	22	C4	0.142	0.033	19
C5	0.198	0.037	17	C5	0.139	0.032	20
				C6	0.237	0.055	6

Table 6 shows the elements ranked by importance. First, the ranking of strengths, weaknesses, opportunities and threats as a group of elements was performed. In this case, strengths have the highest value (0.337), that means that the strengths are ranked first by importance. Weaknesses are in second place (0.274), while threats (0.231) and opportunities (0.188) are in third and fourth place respectively. Therefore, strengths and weaknesses are more important for a company as internal factors with influence on its business than external factors, ie opportunities and threats. The total number of ranked elements is 23. The table shows that the first element - a modern trucks and the ability to respond to all requests is ranked as the first element, that is, the most significant in relation to all other factors with influence on the business of the company. Second by importance is brand recognition, an element that, like the first, is in the group of elements that make the strengths of the company. The lowest ranked element in this group is cost optimization, and in the overall ranking of the elements it takes 14th place. The third most important is - disloyalty of employees, the element that is in the group of elements that make the weaknesses of the company. This element is also the highest ranking element in this group. The worst ranked element in this group is workers' failures, while it takes 18th place in the overall ranking of the elements. The highest ranking element from the group of elements that make opportunities from the environment of the company is business expansion, and in the overall ranking of all elements it takes 7th place. The worst ranked element in this group is EU funds, and it takes 22nd place in the overall ranking. Within the group of elements that make threats from the environment, the highest ranked element is fluctuation of labor, and the worst ranked element is unexpected problems from the ground, which also takes the worst 23rd position in the overall ranking of the elements.

4. CONCLUSION

This research relates to a specific company engaged in the transport of goods on the territory of Bosnia and Herzegovina and abroad. The company has offices in the EU. A SWOT analysis was conducted to get an overview of the situation in the company and based on that, data about the strengths and weaknesses in the company, as well as the opportunities and threats that come from the environment were obtained. Elements from SWOT analysis are ranked by FUZZY PIPRECIA method. From the results of FUZZY PIPRECIA method it can be seen that the Strengths are ranked first by the importance. The worst ranked group of elements is group of Opportunities. The results shows that the first element from group of Strengths, C1 - A Modern Trucks And The Ability To Respond To All Requests is ranked as the first element, and this is the most significant in relation to all other factors with influence on the business of the company. The worst ranked element is C3 - Unexpected Problems From The Ground. This element is from group of Threats. Based on this results it can be concluded that the management of company should pay more attention to the Strengths of company and use strengths to overcome weaknesses and threats.

Following this research, future research should define TOWS matrix based on this SWOT analysis and create strategies for future business. This future research should be focused on creating the model that can help management to make decision about choosing the best strategy in that moment.

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