BULANIK MANTIK İLE TEDARİK ZİNCİRİ YÖNETİMİNDE YETENEK YÖNETİMİ

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Özet

Son zamanlarda yetenek yönetimi başarılı şirketlerin stratejik öncelikleri arasında kritik role sahip olmaya başlamıştır. Endüstrinin değişen ihtiyaçlarını karşılamak ve rekabetçi bir ortamda sürdürülebilir olmak için yeteneğin belirlenmesi ve işe alınması temel bir gerekliliktir. Yeteneğin formüle edilmesi, yönetim kararlarına destek sağlayabilir. Bu çalışma ile, doğru yeteneğin Tedarik Zinciri Yönetimi departmanında Lojistik uzmanı pozisyonuna seçim kararında üç adayın beklenen bilgi, beceri ve yetkinliklerine göre karşılaştıracak matematik bir model uygulanması hedeflenmiştir. Bilgi, beceri ve yetkinlik değerlendirmeleri bir adayın yetenek seviyesini oluşturmaktadır. İnsan kaynakları müdürü ve tedarik zinciri müdürünün profesyonel görüşleri, adayların değerlendirilmesinde girdi olarak kabul edilmiştir. Bilgi, beceri ve yetkinliklerin ağırlıkları adayı değerlendiren yönetim ekipleri tarafından farklı değerlendirilebilir. Ayrıca, aday değerlendirme süreci farklı bakış açıların bağlı olarak belirsizlik içermektedir. Bu yüzden, belirsizliği yönetmek adına bu çalışmada bulanık mantık yaklaşımı uygulanmıştır. Spesifik olarak çok kriterli karar verme yöntemi bazında bulanık analitik hiyerarşi prosesi (AHP) bu çalışmada uygulanmıştır. Kriter bazında ikili karşılaştırılmasıyla yeteneğin sayısal olarak formüle edilmesi bu çalışmanın katkısıdır. Çalışmanın devamı olarak, gelecekte aynı yöntemi diğer insan kaynakları yönetimi uygulamalarına yansıtmak ve bu sayede yönetime karar vermeye destek sağlayan sayısal araçlar sunmak hedeflenmektedir.

Anahtar Kelimeler: *Tedarik Zinciri Yönetimi, İnsan Kaynakları Yönetimi, Yetenek Yönetimi, Bulanık Mantık*

TALENT SELECTION FOR SUPPLY CHAIN MANAGEMENT USING FUZZY LOGIC

Abstract

Recently, talent management takes a critical role among the strategic priorities of the successful companies. Identifying and recruiting talent is a fundamental requirement to meet changing needs of industries and strive in a competitive environment. Talent formulation can contribute to management decisions. In this study, it is aimed to apply a mathematical model to select the right talent to a Logistics Specialist position in a Supply Chain Management department comparing three candidates based on desired knowledge, skill and competencies all of which constitute the talent level of the candidate. The professional views of human resources manager and supply chain manager are considered as input through the assessment of the candidates. The weights of the knowledge, skill and competencies may be assessed differently by management teams that evaluate the candidate. In addition, the candidate assessment process includes vagueness due to different perceptions. Therefore, a fuzzy logic approach is used in this study to overcome the uncertainty. Specifically, a fuzzy analytical hierarchy process (AHP) is applied in this study as a multi criterion decision making methodology. The contribution of this study is to formulize the talent numerically with criterion based pair-wise comparisons. As a future highlight, target is to implement the same methodology to other human resources management processes so as to provide a numerical tool for management decisions.

Keywords: *Supply Chain Management, Human Resources Management, Talent Management, Fuzyy Logic*

1. Introduction

Recently, talent management is recognized more than an area that Human Resources department deals in an organization. Talent management takes a strategical role as a mean to achieve company goals by holding effective resource management, improving organizational performance and differentiating among competitors. Talented employees have higher contribution to the overall performance of the company in terms of quality, cost, productivity and innovation. Therefore, the importance of talent management is growing for companies independent to its sector, its size and its market.

While the requirement for talent is increasing in the organizations, the pressure to recruit and retain the potential candidate at the desired talent level becomes a critical strategic problem. This problem is related not only lacking talent but also identifying and selecting the talent to a right position among a crowd of candidates. Fairness and consistency of identification process holds a critical importance to keep the effectiveness of decision making process. The decision maker needs to evaluate multiple characteristics of a candidate to make sure that the hiring of a talent is accomplished to a right position at the right timing regarding the need of the organization. The cost of hiring a wrong candidate to a position is high for organizations. The consequences of wrong hiring can be resulted in low performance, high turnover, unsatisfied customers, loss of employer branding value and business. The role of the position should be well-defined with the characteristics of the talent level in terms of skills, competencies and knowledge to achieve the task of right assignment. The definition of the talent characteristics can be clarified through a job analysis in addition to human resources professional and line manager views.

When the characteristics for a position is defined, it is important to identify the candidate's talent potential in a right way. The methods to identify the talent varies in organizations with the following applications of in-depth structured interview, assessment centers, reference checks in pre-hiring period, past performance result checks and other skill tests. The process quality of the identification tools is directly related to the objectivity of decision makers. In addition, the criteria may be weighted differently by the assessors (Ližbetinová and Hitka, 2016). The weight of the evaluation criteria depends on the prioritization of management which is directly related to the need of the organization.

Identification of the right talent is a multi-variable equation which depends on the perception and professional views of the assessors (Karatop, et. al., 2014). The decisions include vagueness as both weights of the criteria and evaluations of candidates are assessed by human-beings. The factors affecting the decisions depend on the professional experience of the decision-maker, knowledge, preferences, and judgement (Jantan et al., 2009). At this point, the organizations face the challenge of uncertainty due to lack of systematical and consistent process of ranking and converting the opinions to a numerical data.

The uncertainty challenge of talent identification can be managed by using a fuzzy logic approach which provides a systematic process to support decision makers. Fuzzy systems offer a method for prioritizing the strengths of key characteristics of a talent based on experts' opinions. Among different fuzzy multi criterion decision making methods, Analytical Hierarchy Process (AHP) is selected as the concepts of fuzzy sets are used in a hierarchical structural analysis. The method gives the opportunity to have numerical weight of each characteristics, to rank the candidates through a pairwise comparison and to select the most suitable candidates.

In the second section of this study, literature review takes place regarding methods utilized for talent identification problems. In the third part, fuzzy AHP method which is selected as a tool for talent selection problem to a logistics specialist position is explained in detail. Results are shared in the fourth part of the study. Discussion and conclusion to highlight next steps of future study are presented in the final part of this study.

2. Literature Review

Among various multi-criteria decision-making methods, AHP is one of the extensively used methods. It is developed by Thomas L. Saaty in 1977. It is a mathematical method which enables considering the priority, both quantitative and qualitative assessment of an individual or group of decision makers. A basic elementary hierarchy order is created by decomposing complicated issues from higher level to lower level (Ayhan, 2013). In this method, first goal of the study is set. After, criteria set that affects that goal are identified with experts view or using other expert assessment tools. Applicability of this method is one of its pros as it provides an easy tool in managing multi-criteria decision-making problems. Furthermore, not only quantitative but also qualitative data can be analyzed with AHP. Decomposition, pairwise comparisons, priority vector generation and synthesis are the main fundamentals in AHP (Kahraman et.al., 2004).

Grasping the knowledge of the decision maker is the main intent of AHP. However, the classical AHP lacks working with the human thinking. Overcoming this challenge can be possible with a fuzzy AHP method which aims to work on the hierarchical fuzzy problems. Verbal expressions are collected from the expert reflecting opinions. The idea of membership function to manage different linguistic variables is presented in Fuzzy Theory (Zadeh, 1965). The pairwise comparisons in the judgment matrix are converted into fuzzy numbers based on the prioritization of the decision maker. As a result, qualitative criteria can be evaluated numerically with the set of fuzzy numbers (Aksakal and Dağdeviren, 2015). Evaluating each characteristic, a sequence of weight vectors is created. After the set of scores are calculated, the system gives a score which combines the average of the fuzzy scores given. (Kahraman et.al., 2004).

Another multi criteria decision making method TOPSIS (technique for order preference by similarity to an ideal solution) method intends to find solutions among a finite set of alternatives presented in Chen and Hwang with reference to Hwang and Yoon. The basic principle is that the chosen alternative should have the shortest distance from the positive ideal solution (PIS) and the farthest distance from the negative ideal solution (NIS) (Chen and Hwang, 1992). Based on vague concepts of human thinking, Chen extended TOPSIS method to fuzzy logic by converting linguistic terms to triangular fuzzy numbers, calculating the distance between two fuzzy number, this time finding the fuzzy positive ideal solution (FPIS) and fuzzy negative ideal solution (FNIS) at the same time (Chen, 2000)

DEMATEL (decision-making trial and evaluation laboratory) method is another multi criteria decision making method which is initially carried out by The Battelle Memorial Institute through its Geneva Research Centre in 1973. A structure can be created to analyze the relationship between the factors affecting other factors among a complex criterion in DEMATEL method. In addition, The DEMATEL technique does not require large sets of data. It can represent the casual relationship between the factors by dividing group into cause group and effect group (Chang et.al.,2011). DEMATEL technique can be extended to fuzzy DEMATEL by converting linguistic variables into triangular fuzzy numbers.

Next, ELECTRE (Elimination et Choice Translating Reality) method was introduced by Benayoun et al. (1966). There are different versions of ELECTRE methods which can be used for different types of problems in various areas including energy, environment, finance, project selection and decision analysis (Ayhan, 2013).

PROMETHEE (Preference Ranking Organization Method for Enrichment Evaluations) is another method among multi criteria decision analysis which is first introduced by Brans in 1982. This method can be applied in the areas of environment management, hydrology and water management, business and financial management, chemistry, logistics and transportation, manufacturing and assembly, energy management, social, and other fields. Having an outranking method for a limited set of alternative actions to be tiered and selecting among criteria, which are often conflicting are the characteristics of the method which is simple to apply (Behzadian, et.al., 2010).

Among the various multi criteria decision making methods stated in the literature and as some are given in this part of the article, fuzzy AHP method is selected for talent selection problem to a logistics specialist position. The steps to apply a fuzzy AHP method is explained in detail in the next part of the article.

3. Fuzzy Analytical Hierarchy Method (F-AHP)

There are different types of Fuzzy Analytical Hierarchy Process (AHP) methods that authors propose in literature. Using the fuzzy set theory and hierarchy structure analysis, these methods are applicable in multi criteria decision making problems of alternative selection (Kahraman et.al., 2004). Comparing the alternatives in a pairwise group based on the criteria, sequentially, F-AHP provides a method for alternative selection problems. In the hierarchy levels of AHP, the first tier is the objective; the second tier is the criteria; the third tier is sub level of the criteria and the fourth tier is keeping the alternatives (Ayhan, 2013). Using the linguistic terms and corresponding triangular fuzzy numbers, the verbal expressions of the decision makers are converted in the numerical terms in a set of Saaty scale which is presented in the study of van Laarhoven and Pedrycz (Laarhoven and Pedrycz, 1983). The F-AHP method can be applied with the following steps (Ayhan, 2013):

Step 1: Comparison of the criteria or alternatives via linguistic terms shown in Table 1 by the expert

Table 1. Linguistic Terms and Triangular Fuzzy Numbers

Saaty Scale	Definition	Triangular Fuzzy Scale
1	Equally important	(1, 1, 1)
3	Weakly important	(2, 3, 4)
5	Fairly important	(4, 5, 6)
7	Strongly important	(6, 7, 8)
9	Absolutely important	(9, 9, 9)
2	The intermittent values between two main scales	(1, 2, 3)
4		(3, 4, 5)
6		(5, 6, 7)
8		(7, 8, 9)

Based on the comparison of the criteria or alternatives, the fuzzy scale in table-1 is applied. The matrices are created comparing the criteria or alternatives based on expert opinion. The comparison matrices $\tilde{A}^k$ is given in Eq.-1., where $\tilde{d}_{ij}^k$ shows the k[th] decision maker's opinion of i[th] criterion over j[th] criterion by using fuzzy triangular numbers:

$$\tilde{A}^k = \begin{bmatrix} \tilde{d}_{11}^k & \tilde{d}_{12}^k & \dots & \tilde{d}_{1jn}^k \\ \tilde{d}_{21}^k & \tilde{d}_{22}^k & \dots & \tilde{d}_{2n}^k \\ \dots & \dots & \dots & \dots \\ \tilde{d}_{n1}^k & \tilde{d}_{n2}^k & \dots & \tilde{d}_{nn}^k \end{bmatrix} \quad \text{(Eq-1)}$$

Step 2: In case of multiple decision makers and different opinions, average of the opinions are calculated as stated in in the Eq.-2.

$$\tilde{d}_{ij} = \frac{\sum_{k=1}^{K} \tilde{d}_{ij}^k}{K} \quad \text{(Eq-2)}$$

Step 3: Based on the averaged preferences, matrices is updated as given in Eq.-3.

$$\tilde{A} = \begin{bmatrix} \widetilde{\tilde{d}_{11}} & \widetilde{\tilde{d}_{12}} & \dots & \widetilde{\tilde{d}_{1n}} \\ \widetilde{\tilde{d}_{21}} & \widetilde{\tilde{d}_{22}} & \dots & \widetilde{\tilde{d}_{2n}} \\ \dots & \dots & \dots & \dots \\ \widetilde{\tilde{d}_{n1}} & \widetilde{\tilde{d}_{n2}} & \dots & \widetilde{\tilde{d}_{nn}} \end{bmatrix} \quad \text{(Eq-3)}$$

Step 4: The geometric mean of fuzzy comparison values of each criterion is calculated as shown in Eq.-4 based on Buckley (Buckley, 1985).

$$\widetilde{r_i} = \left(\prod_{j=1}^{n} \widetilde{d_{ij}}\right)^{1/n}, \quad i=1,2,\dots n \quad \text{(Eq.-4)}$$

Step 5: The fuzzy weights of each criterion is calculated with Eq.-5, by the following steps: vector summation of each $\widetilde{r_i}$, next taking the (-1) power of summation vector and replacing the fuzzy triangular number from smallest to largest, finally calculating the fuzzy weight of criterion i ($\widetilde{w_i}$) , multiplying each $\widetilde{r_i}$ with the reverse vector.

$$\widetilde{w_i} = \widetilde{r_i} \otimes (\widetilde{r_1} \oplus \widetilde{r_2} \dots \oplus \widetilde{r_n})^{-1} = (lw_i, mw_i, uw_i) \quad \text{(Eq.-5)}$$

Step 6: In this step $\widetilde{w_i}$ should be de-fuzzified by Centre of area method through Eq.-6 (Chou and Chang, 2008).

$$M_i = \frac{lwi + mwi + uwi}{3} \quad \text{(Eq.-6)}$$

Step 7: Normalization takes place in this step with Eq.-7.

$$N_i = \frac{M_i}{\sum_{i=1}^{n} M_i} \qquad \text{(Eq.-7)}$$

4. Talent Selection for Supply Chain Management Using F-AHP Case Study

Fuzzy AHP method is applied for the talent selection problem of logistics specialist position in supply chain management organization of an industrial chemical products manufacturing company. In the organization, logistics specialist position is directly reporting to supply chain management manager. Human resources manager and supply chain management manager are both responsible and authorized for the recruitment of the vacant position. The job analysis of the logistics specialist position has been made by an external human resources consultancy firm. Based on this analysis the characteristics of the position are found out as follows analytical thinking competency (competency), fundamental industrial engineering and planning knowledge (knowledge) and effective communication skill (skill). There are 3 candidates in the short-list of human resources manager and supply chain management manager. Those candidates are given as A1, A2 and A3 and they are assessed based on 3 criteria as follows competency, knowledge and skill as mentioned. The hierarchy representation of the selection problem is given in the below Figure-1.

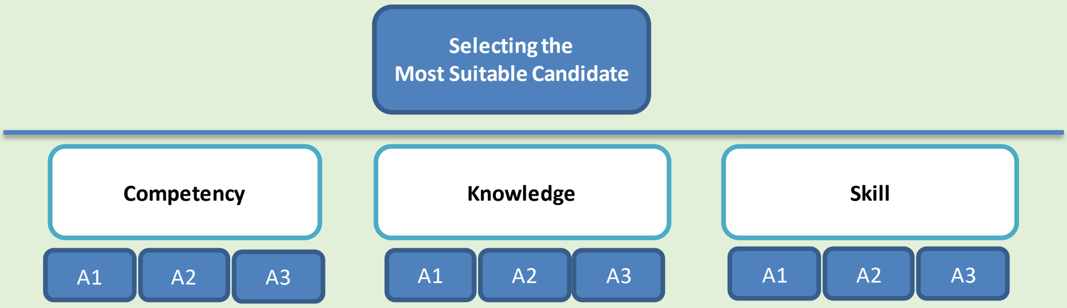

Figure 1. Hierarchy Representation of Candidates and Selection Criteria

4.1. Evaluation of Criteria

Keeping the aim of selecting the most suitable candidate to a logistics specialist position, the human resources manager and supply chain management manager evaluate the criteria competency, knowledge and skill by making a pairwise comparison. They have a consensus result on the comparison of criteria as represented in Table 2.

Table 2. Pairwise Comparison of Candidate Selection Criteria

#	Abs. Imp. (9,9,9)	Stro. Imp. (6,7,8)	Fai. Imp. (4,5,6)	Wea. Imp. (2,3,4)	Criteria	Equ. Imp. (1,1,1)	Criteria	Wea. Imp. (2,3,4)	Fai. Imp. (4,5,6)	Stro. Imp. (6,7,8)	Abs. Imp. (9,9,9)
1			√		Competency		Knowledge				
2					Competency		Skill			√	
3					Knowledge	√	Skill				

The evaluation results are summarized in the matrice given in the Table 3.

Table 3. Selection Criteria Matrice

Criteria	Competency	Knowledge	Skill
Competency	(1,1,1)	(4,5,6)	(1/8, 1/7, 1/6)
Knowledge	(1/6, 1/5, 1/4)	(1,1,1)	(1,1,1)
Skill	(6,7,8)	(1,1,1)	(1,1,1)

Next, the geometric mean of fuzzy values of each criteria is calculated as stated in Eq.-4. Each column is summed and reverse values are calculated by taking the power -1. As the values are arranged in ascending order, Table 4 is completed.

Table 4. Geometrical Mean of Fuzzy Comparison Values of Criteria

Criteria	$\tilde{r_i}$		
Competency	0,79	0,89	1,00
Knowledge	0,55	0,58	0,63
Skill	1,81	1,91	2,00
Total	3,15	3,38	3,63
Reverse (power -1)	0,32	0,30	0,28
Ascending order	0,28	0,30	0,32

After geometric mean of fuzzy comparison values are calculated, fuzzy weights of each criteria should be calculated based on the formula given in Eq.-5. As example, the weight of competency is calculated as in Eq-8.

$\widetilde{w_i}$ = [(0,79*0,28);(0,89*0,30);(1,00*0,32)] (Eq.-8)

When each relative fuzzy weight is calculated for each criteria, Table 5 is structured.

Table 5. Relative Fuzzy Weight of Each Criteria

Criteria	$\widetilde{w_i}$		
Competency	0,22	0,26	0,32
Knowledge	0,15	0,17	0,20
Skill	0,50	0,57	0,63

As a next step, the average of relative fuzzy weight of each criteria is calculated in M_i column and those values are normalized in N_i column of Table 6.

Table 6. Averaged and Normalized Value of Each Criteria

Criteria	M_i	N_i
Competency	0,27	0,26
Knowledge	0,17	0,17
Skill	0,57	0,56

4.2. Evaluation of Alternative Candidates

Similarly, when the alternative candidates are evaluated, the same steps are applied in the pairwise comparison. However this time, the alternatives are evaluated based on each criteria. Table 7, 8, and 9 are formed for alternative comparisons based on competency, knowledge and skill criteria respectively.

Table 7. Pairwise Comparison of Alternative Candidates based on "Competency" Criteria

#	Abs. Imp. (9,9,9)	Stro. Imp. (6,7,8)	Fai. Imp. (4,5,6)	Wea. Imp. (2,3,4)	Alternatives	Equ. Imp. (1,1,1)	Alternatives	Wea. Imp. (2,3,4)	Fai. Imp. (4,5,6)	Stro. Imp. (6,7,8)	Abs. Imp. (9,9,9)
1			√		A1		A2				
2				√	A1		A3				
3					A2		A3	√			

Table 8. Pairwise Comparison of Alternative Candidates based on "Knowledge" Criteria

#	Abs. Imp. (9,9,9)	Stro. Imp. (6,7,8)	Fai. Imp. (4,5,6)	Wea. Imp. (2,3,4)	Alternatives	Equ. Imp. (1,1,1)	Alternatives	Wea. Imp. (2,3,4)	Fai. Imp. (4,5,6)	Stro. Imp. (6,7,8)	Abs. Imp. (9,9,9)
1		√			A1		A2				
2			√		A1		A3				
3				√	A2		A3				

Table 9. Pairwise Comparison of Alternative Candidates based on "Skill" Criteria

#	Abs. Imp. (9,9,9)	Stro. Imp. (6,7,8)	Fai. Imp. (4,5,6)	Wea. Imp. (2,3,4)	Alternatives	Equ. Imp. (1,1,1)	Alternatives	Wea. Imp. (2,3,4)	Fai. Imp. (4,5,6)	Stro. Imp. (6,7,8)	Abs. Imp. (9,9,9)
1		√			A1		A2				
2			√		A1		A3				
3					A2	√	A3				

Next, alternative candidate comparison matrices are created for each 3 criteria as given in Table 10, 11, and 12.

Table 10. Pairwise Alternative Comparison based on "Competency" Criteria

Criteria	**Competency**		
Alternatives	A1	A2	A3
A1	(1,1,1)	(4,5,6)	(2,3,4)
A2	(1/6,1/5,1/4)	(1,1,1)	(2,3,4)
A3	(1/4,1/3,1/2)	(1/4,1/3,1/2)	(1,1,1)

Table 11. Pairwise Alternative Comparison based on "Knowledge" Criteria

Criteria	**Knowledge**		
Alternatives	A1	A2	A3
A1	(1,1,1)	(6,7,8)	(4,5,6)
A2	(1/8,1/7,1/6)	(1,1,1)	(2,3,4)
A3	(1/6,1/5,1/4)	(1/4,1/3,1/2)	(1,1,1)

Table 12. Pairwise Alternative Comparison based on "Skill" Criteria

Criteria	Skill		
Alternatives	A1	A2	A3
A1	(1,1,1)	(6,7,8)	(4,5,6)
A2	(1/8,1/7,1/6)	(1,1,1)	(1,1,1)
A3	(1/6,1/5,1/4)	(1,1,1)	(1,1,1)

The geometric mean of fuzzy candidate comparison values is calculated for each competency, knowledge and skill criteria as stated in Eq.-4. Sum of columns and their reverse values are calculated. Then, they are arranged in ascending order in each criteria group as presented in Table 13.

Table 13. Geometric Mean of Fuzzy Comparison Values of Alternatives for Each Criteria

Alternatives	Competency			Knowledge			Skill		
A1	2,00	2,47	2,88	2,88	3,27	3,63	2,88	3,27	3,63
A2	0,69	0,84	1,00	0,63	0,75	0,87	0,50	0,52	0,55
A3	0,40	0,48	0,79	0,35	0,41	0,50	0,55	0,58	0,63
Total	3,09	3,79	4,67	3,86	4,43	5,00	3,93	4,37	4,81
Reverse (power -1)	0,32	0,26	0,21	0,26	0,23	0,20	0,25	0,23	0,21
Ascending order	0,21	0,26	0,32	0,20	0,23	0,26	0,21	0,23	0,25

Based on the geometric means of each criteria, relative fuzzy weights are calculated for candidates A1, A2 and A3 as shown is Table 14.

Table 14. Fuzzy Weights Comparison Values of Alternatives for Each Criteria

Alternatives	Fuzzy W(Competency)			Fuzzy W(Knowledge)			Fuzzy W(Skill)		
A1	0,43	0,65	0,93	0,58	0,74	0,94	0,60	0,75	0,92
A2	0,15	0,22	0,32	0,13	0,17	0,23	0,10	0,12	0,14
A3	0,09	0,13	0,26	0,07	0,09	0,13	0,11	0,13	0,16

Next, the fuzzy weights should be de-fuzzified by Centre of area method as explained through Eq.-6 and after for each criteria column normalization takes place as shared in Table 15.

Table 15. Defuzzified Weights (M) and Normalized Weights (N) of Alternatives for Each Criteria

Criteria	Competency		Knowledge		Skill	
Alternatives	**M**	**N**	**M**	**N**	**M**	**N**
A1	0,67	0,63	0,75	0,74	0,76	0,75
A2	0,23	0,22	0,17	0,17	0,12	0,12
A3	0,16	0,15	0,10	0,10	0,14	0,13

Finally, combination of weights of criteria and weights of alternatives is given in Table 16. The final score is calculated based on Equ-9 where w_j is the weight of criteria j, s_j is the scores of alternative j and S_i is the total score of alternative i.

$$S_i = \sum_{j=1}^{n} w_j s_j \quad \text{(Equ-9)}$$

Table 16. Final Scores of Alternatives

Criteria	Weights of Criteria (w_j)	Alternative Scores based on Criteria		
		A1 (s_j)	A2 (s_j)	A3 (s_j)
Competency	0,26	0,63	0,22	0,15
Knowledge	0,17	0,74	0,17	0,10
Skill	0,56	0,75	0,12	0,13
Total (S_i)		0,71	0,15	0,13

Based on the total score of the candidate alternatives, A1 got a score of 0,71 which is the highest score of all alternatives. Therefore, it is concluded that A1 is offered for selection to logistics specialist position.

5. Discussion

Within the scope of this study, talent selection for supply chain management function problem is analyzed by using fuzzy AHP method which is one of widely used multi criteria decision making methods. Talent criteria are set by pre-analysis of HR manager and supply chain manager views which are accepted as sufficient for expert view.

This study aims to present a talent selection problem can be handled with a mathematical model using triangular fuzzy number sets which helps to convert qualitative terms into quantitative values. The method is easy to apply in different sector or different functions of an organization during talent identification process of human resources area. The most important factor that should be considered is that the model is created with the experts' view. Therefore, experts should be competent enough to judge the priority of criteria and the comparatively the candidates. This requirement is necessary for the consistency and reliability of the mathematical model.

As a future work, the study should be extended to a larger scale of alternatives and criteria to reflect more real-life cases especially in corporate organizations. In addition, the model is to be applied with alternative multi criteria selection methods to other human resources fields and the results will be compared accordingly.

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