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Personel Selection Based on Talent Management

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Abstract

Due to the globalization, organizations need professional human resources. Qualified personel which has high performances on capability, knowledge, skill, and other abilities play significant roles in the success of an organization. On the other hand having an improper personel might cause many problems such as affecting productivity, precision, flexibility and quality of the products/service negatively. Nowadays organizations try to employ much more qualified personel on management level and they want to find out firstly inside of them. As a new concept talent management deals with this kind of situations.

Right using of talents make the work much more successful and making the work right bring the success to the organization. The subject of this study is to promote a personel dealing with talent management as General Manager (GM) under personel selection problem. There exist six criteria and three candidates for the selection process. In this study, a hybrid model which employs multi attribute decision making methods together, is proposed for the personel selection problem.

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1. Introduction

In our developing world the organizations have to choose their personel under different complicated and changing environment. This makes the managers obligate with the importance of choosing right personel according to the different situations. Becoming one of the important topics of HRM, talents effect directly the organization and the organization success. Nevertheless, competitions of organizations become the competition of talents.

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Basically, HRM is a comprehensive set of managerial activities and tasks concerned with developing and maintaining talented human resource. HRM aims to facilitate organizational competitiveness; raise productivity and quality; promote individual growth and development [1]. Besides that, organizations have to compete effectively in terms of cost, quality, service, flexibility or innovation. All these terms depend on having right people, with right skills, employed in right locations, at right points, at right time [2].

Most organizations faced with complex, competitive, dynamic and fast-changing environment under globalization (talent flow, different generations of personel (older, younger); and a shortage of needed competencies) [3]. Increasing competition in market forced the organizations to get better and strong HR. Nowadays a new stage has been occurred, Talent Management. Talent is considered as a person who equipped with professional knowledge or specialized skills, and make contributions to the society through creative work [4, 5].

2. Personel Selection and Talent Management

Personel defined as people employed in an organization in common. The personel meaning for the organization is capability, knowledge, skill, and other abilities which play significant roles in the success of the organization. Personnel selection is also important and plays a decisive role for finding the sufficient input quality for the organization [6].

Talent management is defined as an outcome to ensure the right person is in the right job [7]. As a new stage talent management is becoming a way of applying HRM functions in the organizations. Considering the above definitions we can say that, talent involved HRM much more sense to be applied in an organization. Under these circumstances, talent management can be defined as an outcome to ensure the right person is in the right job; process to ensure leadership continuity in key positions and encourage individual advancement; and decision to manage supply, demand and flow of talent through human capital engine [2,7].

In this study, a model was proposed for the personel selection process as to promote a candidate to GM position. DEMATEL and TOPSIS methods were applied within the framework of the model. The DEMATEL method is used to find the weights of each criterion. TOPSIS is used to find the ranking for the given candidates. The goal of this paper is supporting the personel selection process with another point of view. Previous studies have generally addressed the personel selection process by using a single method.

3. Research Model

3.1. DEMATEL Method

In order to determine the weights of the criteria's, DEMATEL (The Decision Making Trial and Evaluation Laboratory) method, which can convert the relationship between the causes and effects of criteria into an intelligible structural model, applied to give us the weight that will be used in the proposed model. The criteria's for the proposed model considered as follows; C₁: Communication, C₂: Decision Making, C₃: Teamwork, C₄: Leadership, C₅: Interpersonal Skills, C₆: Technical and Functional. Qualifications. Using the comparison scale of the DEMATEL method (0-No influence, 1-Low influence, 2-Medium influence, 3-High influence, 4-Very High influence) we produced the initial direct-relation matrix as follows in Table 1.

Table 1. The initial direct-relation (A)

	C ₁	C ₂	C ₃	C ₄	C ₅	C ₆
C ₁	0	2	4	3	3	1
C ₂	2	0	3	4	2	2
C ₃	2	3	0	3	3	2
C ₄	3	4	3	0	2	3
C ₅	1	2	4	3	0	2
C ₆	2	2	3	3	1	0

After forming the initial direct relation matrix the normalized direct-relation matrix M can be obtained through formulas (1) and (2). Once the normalized direct-relation matrix has been obtained, the total-relation matrix T (Table 2) can be derived by using formula (3), where the I is denoted as the identity matrix. As a part of given in Table (2) L -R and L+R values; where R is the sum of columns and L is the sum of rows in matrix T, were calculated by Formula (4). These values will be used for to find the criteria’s weights (W) that we need to in further process with using formula (5) [8].

Table 2. Total Relation Matrix (T)

	C ₁	C ₂	C ₃	C ₄	C ₅	C ₆	L+R	L-R	W
C ₁	0,3866	0,6059	0,7919	0,7228	0,5786	0,4505	6,371	0,7016	0,1530
C ₂	0,5003	0,5026	0,746	0,7702	0,5272	0,5018	7,1648	-0,0686	0,1711
C ₃	0,4918	0,646	0,5899	0,7213	0,5685	0,4959	7,865	-0,8382	0,1888
C ₄	0,589	0,7516	0,8164	0,6428	0,5756	0,5883	8,1485	-0,2211	0,1946
C ₅	0,4208	0,5717	0,745	0,6821	0,3887	0,4727	6,3416	0,2204	0,1515
C ₆	0,4462	0,5389	0,6624	0,6456	0,422	0,3378	5,8999	0,2059	0,1409

According to the calculation made, C₄, C₃ and C₂ were three of the most important considering criteria relating to the personel selection process.

3.2. TOPSIS Method

After having the weights of each criteria next step is to rank the candidates. For ranking part TOPSIS method used, which is a multiple criteria method to identify solutions from chosen alternative which have the shortest geometric distance from the positive ideal solution and the longest geometric distance from the negative ideal solution. A decision matrix established for the ranking under 6 criteria within 3 candidates (Table 3).

Table 3. Decision Matrix

	C ₁	C ₂	C ₃	C ₄	C ₅	C ₆
A ₁	20	10	25	40	15	30
A ₂	10	25	30	15	20	40
A ₃	25	20	10	30	40	15

After forming the decision matrix, normalized decision matrix $R_{(n)}[r_{ij}]$ need to be calculated through formula (6). Weighted normalized decision matrix calculated with the weight values gained from DEMATEL method via formula (7). Positive-ideal and negative-ideal solutions determined with formula (8) under benefit criteria. The separation of each alternative from the positive-ideal and negative-ideal solution calculated as using the m dimensional Euclidean distance with formula (9). Lastly, finding the relative closeness to the idea solution by formula (10) will give us the ranking the performance of the candidates [10]. The ranking indicates that the third candidate with relative closeness value 0,555 is the suitable one for GM position as given values in Table 4.

Table 4. Final rank

Rank	Candidate
1	A_3 (0,555)
2	A_1 (0,520)
3	A_2 (0,480)

4. Discussion

Nowadays organizations have so many complicated problems and one of these problems is having limited talented personel and the placement of them in the organization. With the effect of globalization and the competition in the market makes the personel selection problem for an organization much more complex. Rising effect of the talent management process make itself one of the important parts of this selection process in both outside and inside of the firm. Promotion is also a selection problem for the organizations. Therefore, the personnel selection problem should be solved on the basis of an objective decision-making process rather than the personal judgments of the decision-makers.

Through these hypotheses we proposed a model for the personnel selection problem using both DEMATEL and TOPSIS methods. The DEMATEL method used to obtain weights of the criteria and the TOFor the future studies fuzzy numbers can be used in both methods and the proposed model can be enlarged by using fuzzy numbers.

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Appendix A. Methods Formulas

A.1. DEMATEL Method Formulas

$$D_m \in \mathbb{R}^{n \times n} \tag{1}$$

$$e_m = \max_i \left\{ \max_{1 \leq j \leq n} \sum_{j=1}^n a_{ij}, \max_{1 \leq j \leq n} \sum_{i=1}^n a_{ij} \right\} \tag{2}$$

$$T_m = \sum_{x=1}^{\infty} D^x = D \times (I - D)^{-1} \tag{3}$$

$$L_m = L_j \in \mathbb{R}^{n \times n} = \sum_{i=1}^n T_{ij} \in \mathbb{R}^{n \times n}, \quad R_m = R_i \in \mathbb{R}^{n \times 1} = \left\{ \sum_{j=1}^n T_{ij} \right\}_{n \times 1} \tag{4}$$

$$W_{im} = \frac{\sqrt{\alpha R_i \otimes L_i \otimes \alpha R_i - L_i \otimes \alpha R_i}}{\sum_{i=1}^n \sqrt{\alpha R_i \otimes L_i \otimes \alpha R_i - L_i \otimes \alpha R_i}}, W_m = W_i \in \mathbb{R}^{1 \times n} \tag{5}$$

A.2. TOPSIS Method Formulas

$$r_{ij} = \frac{f_{ij}}{\sqrt{\sum_{j=1}^n f_{ij}^2}}, j = 1, 2, \dots, n; i = 1, 2, \dots, m \tag{6}$$

$$v_{ij} = W_j \times r_{ij}, j = 1, 2, \dots, n; i = 1, 2, \dots, m \tag{7}$$

$$V_m^+ = v_1^+, v_2^+, \dots, v_n^+ = \left\{ (\max_i v_{ij} | j \in J) \right\}, \quad V_m^- = v_1^-, v_2^-, \dots, v_n^- = \left\{ (\min_i v_{ij} | j \in J) \right\} \tag{8}$$

$$D_i^+ = \sqrt{\sum_{j=1}^n (v_{ij} - v_j^+)^2}, i = 1, 2, \dots, m, \quad D_i^- = \sqrt{\sum_{j=1}^n (v_{ij} - v_j^-)^2}, i = 1, 2, \dots, m. \tag{9}$$

$$C_i = \frac{D_i^-}{D_i^- \otimes D_i^+}, i = 1, 2, \dots, m \tag{10}$$