

Expatriate Manager Selection for an Overseas Manufacturing Site by Using FMCDM Methods

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Abstract — The human resources is playing a daily important role in modern globalized firms. Appropriate staffing strategies are critical for coordinating and controlling international human resource management related issues across widely distributed business units or subsidiaries over various geographic areas. However, very few researches tried to uncover how the expatriate managers can be selected, especially when the evaluation criteria influence each other. Thus, this research aims to develop a decision framework for selecting appropriate expatriate managers. A multiple criteria decision making (MCDM) framework consisting of the Decision Making Trial and Evaluation Laboratory (DEMATEL) for structuring the decision problem, the Analytical Network Process (ANP) for deriving weights versus each criterion, and finally, the VlseKriterijumska Optimizacija I Kompromisno Resenje (VIKOR) for ranking the alternatives have been proposed. An empirical study based on a globalized high technology firm will be leveraged for verifying the usefulness of this proposed analytic framework on staff selections.

Keywords - *Multinational Enterprises (MNE); International Human Resource Management; Staffing Strategies; Multiple Criteria Decision Making (MCDM); Decision Making Trial and Evaluation Laboratory (DEMATEL); Analytic Network Process (ANP); VlseKriterijumska Optimizacija I Kompromisno Resenje (VIKOR).*

I. INTRODUCTION

In the era of globalization, multinational enterprises (MNEs) have gradually expanded their operations in order to maximize the profitability and enhance the competitive advantages. International trade may occur anywhere in the value chain. Meanwhile, new technologies are enabling global manufacturing activities and service deliveries with the world-class quality and prices [9].

Due to the local and global competitions, MNEs are always seeking lower costs, higher quality as well as products or service discrepancy [2]. The lower costs are including lower-cost materials and lower-cost inputs such as land, utilities, and labor. In addition, the matured markets and limited opportunities in the developed countries further drive many MNEs to seek markets in other countries [22]. Therefore, MNEs in general and high technology MNEs in special usually set up different functional units, including manufacturing, marketing and R&D overseas. Appropriate human resources for managing overseas operations are essential for the final success.

The major purposes for establishing overseas operations of a high technology MNE are three folds: (1) limitations by strict host country government's regulations, higher labor consciousness, and scarce raw materials, (2) attractiveness being provided by foreign countries' preferential policies, well

potential markets or plenty raw materials, and (3) leading the relating industries to create the competitive advantage and reduce the managing cost [14]. Consequently, in order to compete in the global marketplace, high technology MNEs must develop business strategies which can take advantage of global resources and markets. Since high technology MNEs differ in the scale and scope of their international operations, international human resource managers must assist in the global operations no matter what their scale and scope are [20].

However, the international human resource management is not easy. The challenges include of how the thousands of MNE employees in many different countries can effectively be attracted, engaged and retained to achieve the strategic objectives [24]. Therefore, appropriate strategies, including expatriates, inpatriates, and flexpatriates [2] should be designed and executed

To achieve this purpose, a hybrid multiple criteria decision making (MCDM) framework consisting of the Decision Making Trial and Evaluation Laboratory (DEMATEL), the Analytic Network Process (ANP) and the VlseKriterijumska Optimizacija I Kompromisno Resenje (VIKOR) will be proposed. At first, literature being related to high technology MNEs, international human resource management strategies for MNEs, and criteria for expatriate manager selections will be reviewed. The validity of the derived criteria will be confirmed by using the Delphic Oracle's Skills of Interpretation and Foresight (Delphi). The structure of the entire decision making problem will be developed based on the influence relationships between the criteria by using the DEMATEL. Weights versus the criteria will be derived based on the influence relation map (IRM) being derived by using the ANP. Finally, the VlseKriterijumska Optimizacija I Kompromisno Resenje (VIKOR) will be leveraged to rank the criteria.

The rest of this research is organized as follows. In Section 2, literature on MNE and criteria definitions for staffing policies will be reviewed. In Section 3, the hybrid MCDM framework for selecting the appropriate expatriate managers will be defined and demonstrated. In Section 4, an empirical study on a world-leading information technology (IT) company with several overseas manufacturing sites will be illustrated. Discussion and implications will be presented in Section 5. The last section is the conclusion in Section 6.

II. LITERATURE REVIEW

A MNE can be defined as a firm which produces and/or distributes products and/or services across national borders. MNEs have repeatedly been identified as the drivers of globalization [23]. MNEs achieve future successes based on appropriate international assignments. First this section takes a look at a number of criteria that are used by various global firms to select their international assignees [30]. Then the section examines the consequences of making mistakes either

in choosing international assignees or in preparing and supporting their assignments or in helping them make a successful return to home at the end of their international assignments [3].

Most MNEs base their choices for international assignments on candidates' technical expertise. The primary focus is on their ability to perform the target job requirements [9]. MNE makes the choice of individual to be sent on an international assignment and that choice is usually based on the individual's perceived ability to fill a perceived functional or technical need in the foreign operation [2]. The cultural adaptability is at least as important to the successful completion of an overseas assignment as is the individual's technical ability. Expatriates must be able to adjust to their new and often alien environments while effectively delivering their technical and managerial expertise [30]. They must graciously accept their new cultures but not at the expense of not getting their job done. While technical expertise is usually important, the principal difficulty faced by most expatriates lies in the inability of the managers and their families to adapt to the foreign cultures. Since adaptation to the foreign culture is so important to an international assignees performance, his desire for that foreign assignment is critical to their willingness to make the necessary efforts to adjust [17]. Sometimes MNEs need to recruit such people from the outside or acquire the expertise from consulting firms and the expertise could be recruited from overseas countries.

The selection decision for international assignees is critically important. Errors in the selection can have a major negative impact on the success of overseas operations as well as on the careers of relocated managers [17]. From the perspective of headquarters, it is most important that potential international assignees be seen as able to perform both the specific tasks to which they are assigned as well as to perform well in a different national culture. Because of the nature of most international assignments, selections for international transfer are most successful when based on factors such as the following: the maturity of the candidate; ability to handle foreign language; possession of a favorable outlook on the international assignment and locale by the expatriate and his family; possessing appropriate personal characteristics [13]. In order to convince the expatriates to take on the international assignments, some issues like dual families, disruption of their lives, work-life balance issues, and the uncertainty about the impact of the assignment on their careers, employees are becoming increasingly reluctant. MNEs should pay attention to these factors when making selections for international assignments [21].

III. RESEARCH METHODS

The analytical framework consists of five phases: reviewing related literature on MNEs staffing policy, establishing evaluation criteria for MNEs staffing policy by using the modified Delphi and the Cronbach's alpha coefficient; building the structure between evaluation criteria by using the DEMATEL; analyzing and ranking the interrelationship among the factors by using the VIKOR and finally, and deciding the strategies being suitable for each category of MNEs.

A. Modified Delphi

The modified Delphi method was designed by Dalkey and Helmer [19], try to identify issues and problems were collected from a group of technology education professionals using the modified-delphi Technique [12]. The primary objective of a Delphi inquiry is to obtain a consensus as a minimum of 75 percent agreement on any particular item at of opinion from a

group of respondents. Meanwhile, it is possible to develop consensus on a common core of management assessment criteria which, when combined with the institution, unit, and position-specific criteria, can form a comprehensive management audit instrument.

B. DEMATEL

The DEMATEL method was developed by the Battelle Geneva Institute (1) to analyze complex 'world problems' dealing mainly with interactive man-model techniques; and (2) to evaluate qualitative and factor-linked aspects of societal problems [1]. The applicability of the method (e.g. [4; 5; 11; 31]) is widespread. Furthermore, a hybrid model combining the two methods has been widely used in various fields, for example, e-learning evaluation [7], airline safety measurement [11], and innovation policy portfolios for Taiwan's SIP Mall [5]. Therefore, in this paper we use DEMATEL not only to detect complex relationships and build a NRM of the criteria, but also to obtain the influence levels of each element over others; we then adopt these influence level values as the basis of the normalization supermatrix for determining ANP weights to obtain the relative importance. To apply the DEMATEL method smoothly, the authors refined the definitions based on above authors, and produced the essential definitions indicated below. The DEMATEL method is based upon graph theory, enabling us to plan and solve problems visually, so that we may divide multiple criteria into a relationship of cause and effect group, in order to better understand causal relationships. Directed graphs (also called digraphs) are more useful than directionless graphs, because digraphs will demonstrate the directed relationships of sub-systems. A digraph typically represents a communication network, or a domination relationship between individuals, etc. Suppose a system contains a set of elements, $S = \{s_1, s_2, \dots, s_n\}$, and particular pair-wise relationships are determined for modeling, with respect to a mathematical relationship, MR. Next, portray the relationship MR as a direct-relation matrix that is indexed equally in both dimensions by elements from the set S . Then, extract the case for which the number 0 appears in the cell (i, j) , if the entry is a positive integral that has the meaning of: the ordered pair (s_i, s_j) is in the relationship MR; it has the kind of relationship regarding that element such that s_i causes element s_j . The digraph portrays a contextual relationship between the elements of the system, in which a numeral represents the strength of influence. The elements s_1, s_2, s_3 and s_4 represent the factors that have relationships in Fig. 1. The number between factors is influence or influenced degree. For example, an arrow from s_1 to s_2 represents the fact that s_1 influences s_2 and its influenced degree is two. The DEMATEL method can convert the relationship between the causes and effects of criteria into an intelligible structural model of the system [2].

Definition 1: The pair-wise comparison scale may be designated as eleven levels, where the scores 0,1,2,...,10 represent the range from 'no influence' to 'very high influence'.

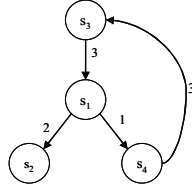


Fig. 1. An example of the directed graph

Definition 2: The initial direct relation/influence matrix A is an $n \times n$ matrix obtained by pair-wise comparisons, in terms of influences and directions between the determinants, in which a_{ij} is denoted as the degree to which the i^{th} determinant affects the j^{th} INC.

$$A = \begin{bmatrix} a_{11} & a_{12} & \cdots & a_{1n} \\ a_{21} & a_{22} & \cdots & a_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ a_{n1} & a_{n2} & \cdots & a_{nn} \end{bmatrix}$$

Definition 3: The normalized direct relation/influence matrix N can be obtained through Equations (1) and (2), in which all principal diagonal elements are equal to zero.

$$N = zA. \quad (1)$$

$$\text{where } z = 1 / \max_{1 \leq i \leq n} \sum_{j=1}^n a_{ij}. \quad (2)$$

In this case, N is called the normalized matrix. Since $\lim_{k \rightarrow \infty} N^k = [0]$.

Definition 4: Then, the total relationship matrix T can be obtained using Equation (3), where I stands for the identity matrix. $T = N + N^2 + \dots + N^k = N(I - N)^{-1}$, (3)

where $k \rightarrow \infty$ and T is a total influence-related matrix; N is a direct influence matrix and $N = [x_{ij}]_{n \times n}$; $\lim_{k \rightarrow \infty} (N^2 + \dots + N^k)$ stands for an indirect influence matrix and

$0 \leq \sum_{j=1}^n x_{ij} < 1$ or $0 \leq \sum_{i=1}^n x_{ij} < 1$, and only one $\sum_{j=1}^n x_{ij}$ or $\sum_{i=1}^n x_{ij}$ equal to 1 for $\forall i, j$. So $\lim_{k \rightarrow \infty} N^k = [0]_{n \times n}$. The (i, j) element t_{ij} of matrix T denotes the direct and indirect influences of factor i on factor j .

Definition 5: The row and column sums are separately denoted as r and c within the total-relation matrix T through Equations (4), (5), and (6).

$$T = [t_{ij}], \quad i, j \in \{1, 2, \dots, n\} \quad (4)$$

$$r = [r_i]_{n \times 1} = \left[\sum_{j=1}^n t_{ij} \right]_{n \times 1} \quad (5)$$

$$c = [c_j]_{1 \times n} = \left[\sum_{i=1}^n t_{ij} \right]_{1 \times n} \quad (6)$$

where the r and c vectors denote the sums of the rows and columns, respectively.

Definition 6: Suppose r_i denotes the row sum of the i^{th} row of matrix T . Then, r_i is the sum of the influences dispatching from factor i to the other factors, both directly and indirectly. Suppose that c_j denotes the column sum of the j^{th} column of matrix T . Then, c_j is the sum of the influences that factor i is receiving from the other factors. Furthermore, when $i = j$ (i.e., the sum of the row sum and the column sum $(r_i + c_i)$ represents the index representing the strength of the influence, both dispatching and receiving), $(r_i + c_i)$ is the degree of the central role that factor i plays in the problem. If $(r_i - c_i)$ is positive, then factor i primarily is dispatching influence upon the strength of other factors; and if $(r_i - c_i)$ is negative, then factor i primarily is receiving influence from other factors [5; 11; 18].

C. Analytic Network Process (ANP)

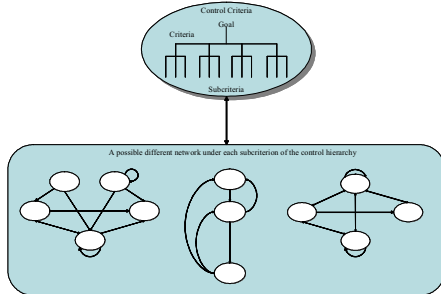
The ANP method, a multi criteria theory of measurement developed by Saaty [26] provides a general framework to deal with decisions without making assumptions about the independence of higher-level elements from lower level elements and about the independence of the elements within a level as in a hierarchy. Compared with traditional MCDM methods [26], e.g. AHP (Analytic Hierarchy Process), TOPSIS, ELECTRE, etc [26; 27], which usually assume the independence between criteria, ANP, a new theory that extends AHP to deal with dependence in feedback and utilizes the supermatrix approach [28], is a more reasonable tool for dealing with complex MCDM problems in the real world. In this section, concepts of the ANP are summarized based on Saaty's earlier works [26-29].

The ANP is a coupling of two parts. The first consists of a control hierarchy or network of criteria and subcriteria that control the interactions. The second is a network of influences among the elements and clusters. The network varies from criterion to criterion and a different supermatrix of limiting influence is computed for each control criterion. Finally, each of these supermatrices is weighted by the priority of its control criterion and the results are synthesized through addition for all the control criteria [26]. A control hierarchy is a hierarchy of criteria and subcriteria for which priorities are derived in the usual way with respect to the goal of the system being considered.

The criteria are used to compare the components of a system, and the subcriteria are used to compare the elements. The criteria with respect to which influence is presented in individual supermatrices are called control criteria. Because all such influences obtained from the limits of the several supermatrices will be combined in order to obtain a measure of the priority of overall influences, the control criteria should be grouped in a structure to be used to derive priorities for them. These priorities will be used to weight the corresponding individual supermatrix limits and add. Analysis of priorities in a system can be thought of in terms of a control hierarchy with dependence among its bottom-level alternatives arranged as a network as shown in Fig. 2. Dependence can occur within the components and between them.

A control hierarchy at the top may be replaced by a control network with dependence among its components, which are

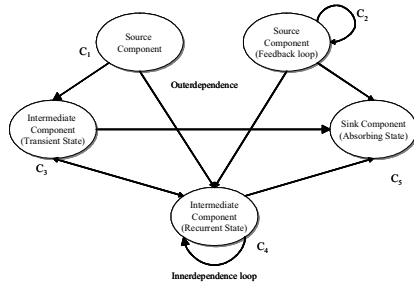
collections of elements whose functions derive from the synergy of their interaction and hence has a higher-order function not found in any single element. The criteria in the control hierarchy that are used for comparing the components are usually the major parent criteria whose subcriteria are used to compare the elements need to be more general than those of the elements because of the greater complexity of the components.



Source: [26]

Fig. 2. The control hierarchy

A network connects the components of a decision system. According to size, there will be a system that is made up of subsystems, with each subsystem made up of components, and each component made up of elements. The elements in each component interact or have an influence on some or all of the elements of another component with respect to a property governing the interactions of the entire system, such as energy, capital, or political influence. Figure 3 demonstrates a typical network. Those components which no arrow enters are known as source components such as C_1 and C_2 . Those from which no arrow leaves are known as sink component such as C_5 . Those components which arrows both enter and exit leave are known as transient components such as C_3 and C_4 . In addition, C_3 and C_4 form a cycle of two components because they feed back and forth into each other. C_2 and C_4 have loops that connect them to themselves and are inner dependent. All other connections represent dependence between components which are thus known to be outer dependent.



Source: [26]

Fig. 3. Connections in a network

A component of a decision network which was derived by the DEMATEL, it will be denoted by $C_i, i=1, \dots, m$, and assume that it has n_i elements, which we denote by $e_{h1}, e_{h2}, \dots, e_{hm}$. The influences of a given set of elements in a component on any element in the decision system are represented by a ratio scale priority vector derived from paired comparisons of the comparative importance of one criterion and another criterion with respect to the interests or

preferences of the decision makers. This relative importance value can be determined using a scale of 1–9 to represent equal importance to extreme importance [26–29]. The influence of elements in the network on other elements in that network can be represented in the following supermatrix:

$$W = \begin{matrix} & \begin{matrix} C_1 & C_2 & \dots & C_m \end{matrix} \\ \begin{matrix} C_1 \\ C_2 \\ \vdots \\ C_m \end{matrix} & \begin{bmatrix} e_{11} & \dots & e_{1n_1} & e_{21} & \dots & e_{2n_2} & \dots & e_{m1} & \dots & e_{mn_m} \\ W_{11} & & W_{12} & \dots & W_{1m} \\ W_{21} & & W_{22} & \dots & W_{2m} \\ \vdots & & \vdots & \ddots & \vdots \\ W_{m1} & & W_{m2} & \dots & W_{mm} \end{bmatrix} \end{matrix}$$

A typical entry W_{ij} in the supermatrix, is called a block of the supermatrix in the following form where each column of W_{ij} is a principal eigenvector of the influence of the elements in the i^{th} component of the network on an element in the j^{th} component. Some of its entries may be zero corresponding to those elements that have no influence.

$$W_{ij} = \begin{bmatrix} w_{i_1 j_1} & w_{i_1 j_2} & \dots & w_{i_1 j_{n_j}} \\ w_{i_2 j_1} & w_{i_2 j_2} & \dots & w_{i_2 j_{n_j}} \\ \vdots & \vdots & \ddots & \vdots \\ w_{i_{n_i} j_1} & w_{i_{n_i} j_2} & \dots & w_{i_{n_i} j_{n_j}} \end{bmatrix}$$

After forming the supermatrix, the weighted supermatrix is derived by transforming all columns sum to unity exactly. This step is very much similar to the concept of the Markov chain in terms of ensuring that the sum of these probabilities of all states equals 1. Next, the weighted supermatrix is raised to limiting powers, such as Equation (5) to get the global priority vector or called weights [4].

$$\lim_{\theta \rightarrow \infty} W^\theta \quad (7)$$

In addition, if the supermatrix has the effect of cyclicity, the limiting supermatrix is not the only one. There are two or more limiting supermatrices in this situation, and the Cesaro sum would need to be calculated to get the priority. The Cesaro sum is formulated as follows.

$$\lim_{\psi \rightarrow \infty} \left(\frac{1}{\psi} \sum_{j=1}^{\psi} W^j \right) \quad (8)$$

To calculate the average effect of the limiting supermatrix (i.e. the average priority weights) where W_j denotes the j^{th} limiting supermatrix. Otherwise, the supermatrix would be raised to large powers to get the priority weights [10]. The weights of the k^{th} criterion derived by using the above ANP processes, namely $\omega_k, k \in \{1, 2, \dots, n\}$, will be regarded as the weight of the k^{th} criterion.

D. VIKOR

VIKOR was proposed by Opricovic [6] and is a method to develop for multi-criteria optimization of complex systems. It determines the compromise ranking list and the compromise solution obtained with the initial (given) weights [16]. For

example from Figure 3-6, f_1^* (the ideal value of the first assessment criterion) and f_2^* (the ideal value of the second criterion) cannot reach f^* (ideal solution) at the same time. And the compromised solution is a point on the curve. f^c is closest to the ideal solution (f^*) among all non-inferior solutions. And therefore, the optimum compromised solution is: $f^c = f_1^c, f_2^c$. The steps of applying VIKOR are shown as follows [25]:

Step 1: Determine the ideal (best) solution (f_1^*) and the negative (worst) ideal solution (f_i^-) values of all criterion functions, $i = 1, 2, \dots, n$. If the i th function represents a benefit then:

$$f_i^* = [(\max_j f_{ij} | i \in I_1), (\min_j f_{ij} | i \in I_2)], \forall_i \quad (9)$$

$$f_i^- = [(\min_j f_{ij} | i \in I_1), (\max_j f_{ij} | i \in I_2)], \forall_i \quad (10)$$

Step 2: Compute the values S_j and R_j , $j = 1, 2, \dots, J$, by the relations

$$S_j = \sum_{i=1}^n w_i (f_i^* - f_{ij}) / (f_i^* - f_i^-) \quad (11)$$

$$R_j = \max_i [w_i (f_i^* - f_{ij}) / (f_i^* - f_i^-)], j = 1, 2, \dots, J \quad (12)$$

where w_i are the weights of criteria, expressing their relative importance.

Step 3: Compute the values Q_j , $j = 1, 2, \dots, J$, by the relation

$$Q_j = \nu(S_j - S^*) / (S^- - S^*) + (1 - \nu)(R_j - R^*) / (R^- - R^*) \quad (14)$$

where $S^* = \min_j S_j$, $S^- = \max_j S_j$, $R^* = \min_j R_j$, $R^- = \max_j R_j$

and ν is introduced as a weight for the strategy of maximum group utility, whereas $1 - \nu$ is the weight of the individual regret.

Step 4: Rank the alternatives, sorting by the values S , Q and R , in decreasing order. The results are three ranking lists.

Step 5: Propose as a compromise the alternative (a') which is ranked the best by the measure Q (minimum) if the following two conditions are satisfied:

C1. Acceptable advantage: $Q(a'') - Q(a') \geq DQ$ where a'' is the alternative with second position in the ranking list by Q ; $DQ = 1/(J - 1)$; J is the number of alternatives.

C2. Acceptable stability in decision making: Alternative a' must also be the best ranked by S or/and R . This compromise solution is stable within a decision making process, which could be: "voting by majority rule" (when $\nu > 0.5$ is needed), or "by consensus" $\nu \approx 0.5$, or "with veto" $\nu < 0.5$. Here, ν is the weight of the decision making strategy "the majority of criteria" (or "the maximum group utility").

If one of the conditions is not satisfied, then a set of compromise solutions is proposed, which consists of:

- Alternatives a' and a'' if only condition C2 is not satisfied.
- Alternatives a' , a'' , ..., $a^{(M)}$ if condition C1 is not satisfied; and $a^{(M)}$ is determined by the relation

$Q(a^{(M)}) - Q(a') < DQ$ for maximum M (the positions of these alternatives are "in closeness").

According to Tzeng [8], the compromise solution is determined by the compromise-ranking method; the obtained compromise solution could be accepted by the decision makers because it provides maximum group utility of the majority (represented by $\min S$, Eq. (11)), and minimum individual regret of the opponent (represented by $\min Q$, Eq. (12)). The VIKOR algorithm determines the weight stability intervals for the obtained compromise solution with the input weights given by the experts.

IV. EMPIRICAL STUDY IN R&D FUNCTION

Following, an empirical study based on one of the world's leading IT company will be used for demonstrating the feasibility of the proposed hybrid MCDM framework. Managers for manufacturing sites will be evaluated and expatriated.

Ten experts with more than five years working experiences in globalized IT firms were invited to evaluate each of the first sixteen criteria. Those sixteen criteria include work experience (c_1), educational degree (c_2), language skill (c_3), age and sexuality (c_4), creativity (c_5), execution (c_6), communication (c_7), leadership (c_8), personal willingness (c_9), personal health (c_{10}), compensation (c_{11}), family support (c_{12}), loyalty (c_{13}), integrity (c_{14}), social skill (c_{15}) and cross-culture skill (c_{16}). The IRM can be derived then based on the DEMATEL. Furthermore, based on the ANP being introduced in Section 3, the weights versus each criterion can be derived. Based on the IRM being derived by the DEMATEL, the ANP method can be applied for calculating the weight versus each criterion. Pair-wise comparison results for the importance level of criteria being connected to the same goal are deprived according to experts' opinions and were provided as inputs for the ANP. The Super Decision [26] was used for deriving the weights (TABLE I).

TABLE I. The weights versus the criteria

Criteria	c_1	c_2	c_3	c_4	c_5	c_6	c_7	c_8
Weight	0.061	0.059	0.138	0.000	0.039	0.105	0.109	0.082
Criteria	c_9	c_{10}	c_{11}	c_{12}	c_{13}	c_{14}	c_{15}	c_{16}
Weight	0.113	0.037	0.000	0.021	0.056	0.054	0.126	0.000

Finally, the manager for an overseas manufacturing site can be evaluated and prioritized. According to Table II, the ranking results between all alternatives. The candidate C is the best one due to its lowest value in R-measure.

TABLE II. Results of ranking alternatives

Candidate	A	B	C
S	0.582	1.065	0.466
Q	0.138	0.808	0.109
R	0.118	1.000	0.000
Rank	2	3	1

V. DISCUSSION

In order to develop and sustain the global competitive advantage, appropriate international human resources management strategies should be adopted by MNEs. The appropriate expatriate manager selection is the very beginning step for the success of the international human resources management.

Based on the empirical study results, the language skill (0.138), social skills (0.126), personal willingness (0.113), communication skills (0.109), and execution capabilities (0.105) were regarded as the most important criteria. Except for the well-recognized including language skill et al., execution was selected as one of the important criteria albeit very little literature mentioned this criterion.

The criteria being neglected are worth discussing also. In this research, age, sexuality, creativity, personal health, compensation, as well as cross-culture skill was neglected. For the high technology firms being located in both Taiwan and China, since most managers got graduate degrees, their tendency to despise younger or female managers are less significant. Further, since the most Taiwanese IT company mainly focuses on process innovation aiming at cost reduction instead of product innovation, creativity is regarded as an non-important factor. For the neglect of health, compensation and family support, since most Taiwanese or mainland Chinese IT firms usually adopt the low cost strategy instead of differentiation, since there is almost nothing to be differentiated. Managers in such Asian firms usually neglected their personal health and family life.

Based on the results, the expatriates need to constantly enhance their professional skills and develop the potential energy by MNE training. The integrated training of the expatriates should be included manpower development, management development, career development, pre-departure training, and preview of the expatriate position, cultural awareness, language training and pre-departure practices.

In comparison with the traditional Fuzzy AHP based MCDM framework, the hybrid MCDM model consisting of the Delphi, the DEMATEL, the ANP, and the VIKOR was designed to overcome (1) the global expatriate selection issue, (2) traditional MCDM approaches for evaluating the global expatriate selection problem based on the wrong assumptions on the independence between the determinants, (3) the concept of the VIKOR which can be used to derive the optimal strategy which is closest to the ideal solution. Through the case study, we found the hybrid MCDM model to be applicable.

VI. CONCLUSIONS

In the era of globalization, appropriate expatriate manager selections are critical conditions for the success of overseas operations. In this research, a hybrid MCDM framework consisting of the DEMATEL, the ANP and the VIKOR was proposed for selecting an appropriate expatriate manager for overseas manufacturing sites. An empirical study being modified from a real situation of a leading IT firm was introduced for verifying the feasibility of the proposed framework. In the future, the proposed framework can be applied on other expatriate selection problems. Meanwhile, further researches on the criteria being neglected during the evaluation process, including age, sexuality, compensation, cross-culture skill and etc. worth investigations.

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