Designing a Favorable Method for Developing Manager Competency Models

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Abstract

Evaluating strategies for developing competency models is a kind of mu1tiple criteria decision-making (MCDM) problem required to consider a large number of complex factors as multiple-criteria. Many traditional MCDM methods are based on the independence assumption, whereas the Analytic Network Process (ANP) can deal with all kinds of dependences systematically. Since the ANP has these advantages, this paper proposes a favorable method based on the ANP to evaluate and select strategies for developing manager competency models.

***Keywords*:** Manager Competency models、Mu1tiple criteria decision-making(MCDM)、Analytic network process (ANP)

摘要

由於發展職能模型評選策略時，必須考慮多種複雜的因素，因此評選職能模型為一種多準則決策(MCDM)問題。許多傳統的 MCDM 方法是基於獨立假設，然而分析網絡程序(ANP)能有系統地解決非獨立的相依假設問題。因此，基於 ANP 法的優勢，本研究提出一個基於 ANP 的評量方法，作為評選管理職能模型的發展策略之應用。

關鍵字：管理者職能模型、多準則決策(MCDM)、分析網絡程序(ANP)

1. Introduction

Many companies are expecting their managers to perform at higher levels. To accomplish these objectives, companies must help their managers to identify and cultivate their competencies. It is now a leading company strategy to develop or adopt manager competency models, and also apply competencies in all major human resource fields, including recruitment, selection, assessment, development, appraisal, and rewards (Schoonover et al., 2000; JPC-SED, 2002; Sinnott et al., 2002).

A competency model is a set of competencies, often organized into some groupings or clusters for a specific purpose. The competencies are generally defined as groupings of behaviors that encompass the knowledge, skills, attitudes, motives, and temperament that distinguish excellent performers (Schoonover et al., 2000). Basically, the competency model can be used to measure performance and to guide action. As Sinnott et al. (2002) remark more clearly, the competency model can be used to identify the competencies which employees need to improve performance in their current job or to prepare for other jobs. And employees' competencies may be compared to the appropriate model to detect where the gaps exist. Then, individual training and development plans may be developed to bridge the gaps.

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Using competencies as the basis for human resource systems has become a worldwide trend. But, in fact, it is necessary to build the competency models up front, when competencies are applied to human resource systems. Furthermore, determining appropriate methods for developing competency models is the key step within the competency project plan. Particularly, whether or not the method for developing competency models is appropriate will deeply influence success in implementation of the competencies. In general, choosing what methods to use depends on the different purposes involved, as well as the limited resources and the preferences of companies. That is, when companies choose methods for developing competency models, they need to consider a large number of complex factors as multiple-criteria. Hence, evaluating strategies for developing competency models is a kind of mu1tiple criteria decision-making (MCDM) problem. A typical MCDM problem is a decision-making problem required to evaluate a set of alternatives in terms of several decision criteria, it is better to employ MCDM methods for reaching an effective problem-solving.

Many traditional MCDM methods are based on the additive concept along with the independence assumption, but each individual criterion is not always completely independent (Shee et al., 2003; Leung et al., 2003). For solving the interactions among elements, the Analytic Network Process (ANP) as a new MCDM method was proposed by Saaty (1996). The ANP is the mathematical theory that can deal with all kinds of dependence in feedback systematically (Saaty, 2003). Since the ANP has these advantages, this paper proposes a favorable method based on the ANP to evaluate and select strategies for developing manager competency models.

2. Competency and competency models

As Spencer and Spencer (1993) defined, “A competency is an underlying characteristic of an individual that is causally related to criterion-referenced effective and/or superior performance in a job or situation”. The concept of competency has been developed by McClelland and the McBer & Company. Especially, McClelland’s paper, “Testing for Competence Rather Than Intelligence” (McClelland, 1973), started the competency movement in 1970s. As most know, Competencies are characteristics of people that differentiate performance in a specific job or role (Kelner, 2001; McClelland, 1973). The definition of what a competency is has still not reached unanimity over the years. Sinnott et al. (2002) argue that competencies are different from knowledge, skills, and abilities (KSAs). Competencies encompass not only KSAs but also personal characteristics. Now competencies are commonly conceptualized as a measurable pattern of knowledge, skills, abilities, behaviors, and other characteristics (KSAOs) that differentiate high from average performance (Mirable, 1997; Athey & Orth, 1999; Rodriguez et al. 2002).

As for what a competency model is, Mansfield (1996) stated that a competency model is a detailed description of behaviors which requires employees to have the ability to be effective in a job. Excellent performers on-the-job demonstrate these behaviors much more consistently than average or poor performers (Schoonover et al., 2000). Competency models are often developed by studying what top performers do in the defined job context. For developing a competency model, the essential data may be collected in a variety of ways, including employee questionnaires, focus groups, and interviews with managers and employees (Sinnott et al., 2002). The competency model is important because it provides a road map for the range of behaviors that produce excellent performance. It may help employee development efforts to eliminate the gap between capabilities needed and those available (Sinnott et al., 2002).

There are several useful manager competency models such as Boyatzis (1982), Spencer and Spencer (1993), Quinn et al. (1996), and Hellriegel et al. (2002). But there is no unique one which can be suitable for all varied companies. In addition, competency models are

required to be timely reformed for adapting to the changeable environment (Athey & Orth, 1999).

3. Strategies for developing competency models

Competency models are usually developed through a process of planning, competency modeling, validating, and finalizing (Lucia & Lepsinger, 1999). To ensure the successful implementation of competencies, a competency project plan will enable the company to develop competency models and launch competency applications effectively (Lucia & Lepsinger, 1999; Schoonover et al., 2000; Sinnott et al., 2002). Especially, Sinnott et al. (2002) recommend a strategy with guidelines for developing and using competencies. It includes: (1) identifying the positions for which you are establishing competencies; (2) developing the competency model; (3) assessing individual competencies and identify gaps; (4) developing strategies to address the gaps; and (5) reassessing competencies and evaluate return on investment. The Japanese Style Competency Study Group (2000) suggests that contents of establishing groundwork comprise methods for determining the goals and objectives, scope, methods for developing competency models, and communication. Especially important is that determining what is an appropriate method for developing competency models is a strategic alternative, and that is also the key to determining whether a competency project plan is usable or not.

Regarding strategies for developing competency models, Spencer and Spencer (1993) mention that: (1) competency studies are most cost-effective when they focus on value-added jobs; (2) full-scale classic studies are relatively expensive and take two or three months; and (3) expert panel based studies are suitable for analysis of large numbers of less critical jobs. Moreover, the Japanese Style Competency Study Group (2000) deems that: (1) the classic method is more workable for analysis of specific roles, but it requires much effort and expense; and (2) the simple method is more suitable for analysis of regular or general roles. As Sinnott et al. (2002) emphasize, in order to overcome significant barriers and to improve impact of competency interventions, there are some important matters to consider with regard to model building, such as: (1) it is need to ensure the linkage between competency initiatives and organization strategies; and (2) it is better to keep models simple at launch, and leverage tools and databases to “quick start” model building. However, what method is the best for developing competency models is hard to say for certain. It really is all dependent on the different objective, the limited resources and the preferences of companies. Thus, selecting a proper method for developing competency models is a kind of MCDM problem, which has some alternatives with multiple-criteria for achieving goal.

Selecting a proper method for developing competency models is a MCDM problem. We need to employ MCDM methods to handle it well. There are many MCDM methods have been developed such as ELECTRE, TOPSIS, and AHP, but these methods do not deal with the interdependence in feedback among elements. For overcoming this kind of problem, the ANP was proposed by Saaty (1996) as a new MCDM method. The ANP was developed from the AHP, but it can overcome limitations of the AHP, e.g., the independence assumption among elements (Salomon & Montevechi, 2001). In other words, the ANP handles the interactions within a cluster of elements (inner dependence) or between clusters (outer dependence), and that reflects well the complex interactions in real world situations (Saaty, 2003).

4. The proposed method

In order to utilize the ANP, referring to these ideas (Opricovic & Tzeng, 2004; Saaty, 2003; Lee & Kim, 2000), the procedures of proposed method are mainly divided into four steps as follows.

Step 1: Defining the decision goals. The first step is defining the decision goals for selecting development strategies of manager competency models. Step 2: Establishing evaluation clusters. After defining the decision goals, it is required to generate and establish evaluation clusters including the criteria cluster, the sub-criteria cluster, and the alternatives cluster. The criteria cluster includes three elements which are: Senior manager (C_1), Middle manager (C_2), and First-line manager (C_3), because managers are divided into three classes according to the management level.

Next, there are some barriers to successful implementation, including: lack of expertise, limited support, competing priorities, lack of staff resources, and lack of fiscal resources (Schoonover et al., 2000), but these barriers are helpful to keep in mind before developing competency models. Therefore, when selecting methods of developing competency models, we may consider these sub-criteria such as: expertise, support by top management, priority, staff resources, and fiscal resources. Additionally, developing competency methods must meet business changes and organizational needs (Athey & Orth, 1999). From this viewpoint, we should also apply another sub-criterion, which is the element of timeliness. Hence, the sub-criteria cluster is to use for evaluating the alternatives cluster of development strategies, in which six elements are: Expertise (S_1); Support by top management (S_2); Priority (S_3); Staff resources (S_4); Fiscal resources (S_5); and Timely (S_6).

Referring to Sinnott et al. (2002), we can consider that selecting a strategy for developing competency models is a strategic alternative, and there are two sets of possible options with different aspects can be extracted such as: (1) classic method or simple method, and (2) with the help of external experts or on one's own. Further, if we portfolio these two sets of possible options, which can be categorized into four kinds of development strategies: Classic method with external experts (A_1), Self-made classic method (A_2), Simple method with external experts (A_3), and Self-made simple method (A_4).

Step 3: Applying an ANP model. For dealing with the interdependence among elements, the ANP as a new MCDM method was proposed by Saaty (1996). The ANP is a nonlinear structure, while the AHP is hierarchical and linear with a goal at the top level and the alternatives in the bottom level (Saaty, 1999). As Saaty (2003) states, it allows one to include all the factors and criteria, tangible and intangible, that have bearing on making an optimum decision. Also, the ANP is a multi-criteria approach for decision-making, and may transform qualitative judgments into quantitative values. The ANP method has been successfully applied in many fields (Shang et al., 2004; Yurdakul, 2004; Karsak et al., 2003; Partovi & Corredoira, 2002; Meade & Presley, 2002; Agarwal & Shankar, 2002; Partovi, 2001; Lee & Kim, 2001).

The ANP model may consist of a single network or a number of networks. Saaty (1999) has demonstrated several types of ANP models, such as: the Hamburger Model, the Car Purchase BCR model, and the National Missile Defense model. From the viewpoint of Kinosita (2003), the ANP may be differentiated into two kinds of models, namely, the Feedback System model and the Series System model. In the Feedback System model, clusters link one by one in turn as a network system. This kind of model can capture effectively the complex effects of interplay in human society, especially when risk and uncertainty are involved (Saaty, 2003). Here, this paper does not obviate the possibility of interactions within the sub-criteria, and modifies the Feedback System model proposed by Kinosita (2003), allowing inner dependences within the sub-criteria. Basing on the Feedback System model, we can draw the decision network structure (see Fig. 1.) for the use of evaluating and selecting strategies for developing manager competency models.

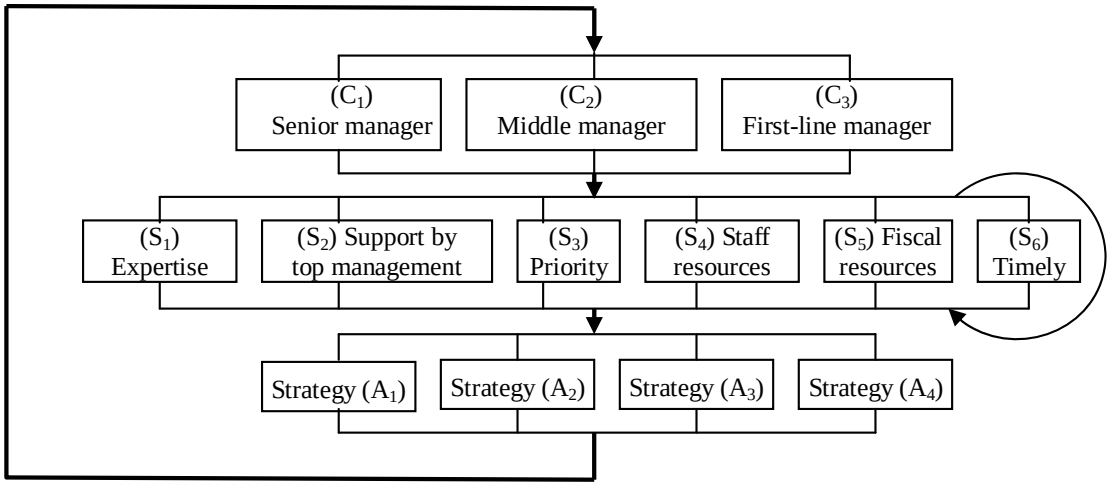

Fig 1 The decision network structure.

Step 4: Selecting the optimal solution. After building that decision network structure, it is necessary to make pairwise comparison judgments between elements, and synthesize the overall priorities for the alternatives. For determining the relative importance between elements, decision makers are asked to respond through a series of pairwise comparisons. These pairwise comparisons are based on Saaty's nine-point scale and represent how many times one element is more important than another, where a score of 1 indicates equal importance between the two elements and 9 represents the extreme importance of one element compared to the other one. The $a_{ij} = 1/a_{ji}$ express ratio scale priorities by making paired comparisons of elements, where a_{ij} denotes the importance of the ith element compared to the jth element.

For evaluating the weights of elements, the AHP uses the principal eigenvector of comparison matrix, whereas the ANP employs the limiting process method of the powers of the supermatrix (Sekitani & Takahashi, 2001). A supermatrix is a partitioned matrix, where each submatrix is composed of a set of relationships between two clusters. The unweighted supermatrix W (see Fig. 2) contains the local priorities derived from the pairwise comparisons throughout the network. Where W_C is a matrix that represents the weights of criteria with respect to the alternatives, the matrix W_S that denotes the weights of sub-criteria with respect to criteria, and the matrix W_A that shows the weights of alternatives with respect to sub-criteria. Moreover, the matrix $W_{\tilde{S}}$ is denoted as the inner dependence matrix of sub-criteria. To derive the overall priorities of elements, we need to multiply submatrixes numerous times in turn, until the columns stabilize and become identical in each block of submatrixes. In other words, the unweighted supermatrix is raised to limiting powers to calculate the overall priorities, and thus the cumulative influence of each element on every other element with which it interacts is obtained. In this case, it is necessary to raise the unweighted supermatrix to the power $3k+1$, where k is an arbitrary large number (Saaty, 2003).

$$W = \begin{array}{c} \\ \text{Criteria} \\ \text{Sub-Criteria} \\ \text{Alternatives} \end{array} \begin{array}{c} \begin{array}{ccc} \text{Criteria} & \text{Sub-Criteria} & \text{Alternatives} \end{array} \\ \begin{pmatrix} 0 & 0 & W_C \\ W_S & W_{\tilde{S}} & 0 \\ 0 & W_A & 0 \end{pmatrix} \end{array}$$

Fig 2 The unweighted supermatrix.

5. Conclusions

Many advanced companies are starting to adopt the use of competencies as an essential management technology to enhance their competitiveness. However, in fact, it is extremely important to build the competency model up front, when competencies are applied to human resource systems. Moreover, while enterprises are intent on developing a competency model, it is also very important to think about ways of determining what methods should be used for developing competency models beforehand. Developing competency models requires a great deal of time, money and effort, and if the model is poorly constructed, it may lead to wasted resources and less than satisfactory results.

Choosing methods for developing competency models is a strategic issue, which is usually restricted by resource needs, realistic support, time requirements, and conformity with expected outcomes or business purposes. Solving these strategic issues always involves a group decision-making process with multiple-criteria for evaluating alternatives. Hence, evaluating and selecting strategies for developing competency models is a kind of MCDM problem. There are many MCDM methods that have been developed, but these traditional methods do not handle the interactions among elements. For solving this problem, the ANP, a new and potent MCDM method, was developed.

For the purpose of helping companies to evaluate strategies for developing manager competency models successfully, this paper develops a favorable method based on the ANP. Because the proposed method can handle the effects of dependence and feedback, it is relatively useful and the evaluation result is reasonable and objective. Furthermore, the proposed method can be also used to evaluate many kinds of selection problems when involving complex multiple-criteria.

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