

# Selecting knowledge management strategies by using the analytic network process

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## Abstract

For ensuring the successful implementation of knowledge management, here raises a critical issue of how companies can better evaluate and select a favorable knowledge management strategy before that implementation. However, selecting a proper knowledge management strategy is a kind of multiple criteria decision-making (MCDM) problem required to consider a large number of complex factors. Unlike many traditional MCDM methods that are based on the independence assumption, the analytic network process (ANP) is a relative new MCDM method which can deal with all kinds of dependences systematically. Since the ANP has these advantages, in this paper, we develop an effective method based on the ANP to help companies that need to evaluate and select knowledge management strategies. Additionally, an empirical study is presented to illustrate the application of the proposed method.  
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## 1. Introduction

As knowledge is taking on an important strategic role (Desouza, 2003; Liao, 2003; Zack, 1999), numerous companies are expecting their knowledge management (KM) to be performed effectively in order to leverage and transform the knowledge into competitive advantages. According to Kamara, Anumba, and Carrillo (2002), KM is the organizational optimization of knowledge to achieve enhanced performance through the use of various methods and techniques. Also, KM is a systemic way to manage knowledge in the organizationally specified process of acquiring, organizing and communicating knowledge (Benbya, Passiante, & Belbaly, 2004). Today, KM and related strategy concepts are promoted as important components for organizations to survive (Martensson, 2000).

The effective management starts with a proper strategy (Gopal & Gagnon, 1995). In order to implement the KM successfully, here raises a critical issue of how companies can better evaluate and select a favorable KM strategy before that KM implementation. However, although numerous creditable works are devoted to the study of how to build a KM strategy and to execute the KM successfully, few of those have provided methods which can systematically evaluate and model complex factors of the KM strategy. Generally, selecting what kinds of KM strategies to use depends on the different purposes, the limited resources, and even the preferences of companies. When companies need to evaluate and select KM strategies, they usually face to consider a large number of complex factors. Typically, the multiple criteria decision-making (MCDM) problem is a decision-making problem required to evaluate several alternatives involved in a set of evaluation criteria. Hence, selecting a KM strategy is a kind of MCDM problem, 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

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is not always completely independent (Leung, Hui, & Zheng, 2003; Shee, Tzeng, & Tang, 2003). For solving the interactions among elements, the analytic network process (ANP) as a relative new MCDM method was proposed by Saaty (1996).

The ANP is the mathematical theory that can deal with all kinds of dependence systematically (Saaty, 2004). The ANP has been successfully applied in many fields (Agarwal & Shankar, 2002; Karsak, Sozer, & Alptekin, 2003; Lee & Kim, 2001; Meade & Presley, 2002; Partovi, 2001; Partovi & Corredoira, 2002; Shang, Tjader, & Ding, 2004; Yurdakul, 2004). Since the ANP has these advantages, in this paper, we develop an effective method based on the ANP to help companies that need to select favorable KM strategies. Also, an empirical study is presented to illustrate the application of the proposed method. The rest of this paper is organized as follows. In Section 2, some of the prior literature related to the KM strategy is reviewed. In Section 3, the proposed method based on the ANP is developed. In Section 4, an empirical study is illustrated. Finally, according to the findings of this research, conclusions and suggestions are presented.

## 2. The concept of knowledge management strategy

In the knowledge economy, a key source of sustainable competitive advantage relies on the way to create, share, and utilize knowledge (Desouza, 2003). For reacting to an increasingly rival business environment, many companies emphasize the importance of KM, and base the KM strategy on their unique resources and capabilities. The concept of knowledge and KM strategy are discussed below.

### 2.1. The nature of knowledge

Knowledge has the ability to utilize information and to influence decisions (Watson, 1999), as well as has the capability to act effectively (Benbya et al., 2004). The power of knowledge is a very important resource for learning new things, solving problems, and creating core competencies (Liao, 2003). However, for knowledge to make this contribution, it needs to be converted into competencies (Johannessen & Olsen, 2003). There are some peculiar characteristics of knowledge, such as: it is intangible and difficult to measure, but sometimes increases through use (Wiig, Hoog, & Spek, 1997). Especially, Liao (2002) argues that it is necessary to update and share knowledge in order to conquer the problem of knowledge inertia. Regarding the distinction between information and knowledge, as Spiegler (2003) states, information becomes knowledge when it adds insight.

Trying better to understand the nature of knowledge is to categorize it (Roos & Roos, 1997). Although knowledge can be categorized into several types (Johannessen, Olaisen, & Olsen, 2001; Zack, 1999), the most frequently used distinction is tacit versus explicit knowledge (Roos & Roos, 1997).

Explicit knowledge bases in data and is converted into information; by contrast, tacit knowledge bases in practice and experience (Johannessen & Olsen, 2003). According to Nonaka and Konno (1998), explicit knowledge can be expressed in words and numbers; whereas tacit knowledge includes subjective insights, intuitions, and hunches, is highly personal and hard to formalize. As Nonaka (1994) indicates, organizational knowledge is created by a continuous dialogue between tacit and explicit knowledge.

There is increasing recognition that the competitive advantage of firms depends on their ability to create, transfer, utilize and protect difficult-to-imitate knowledge assets (Teece, 2000). In a knowledge economy, the core assets of the modern business enterprise are the knowledge assets including the intelligence, understanding, skills, and experience of its employees (Manville & Ober, 2003). Hence, organizations need to examine how they can better leverage knowledge assets for value creation (Massey, Montoya-Weiss, & Holcom, 2001). The knowledge asset is the main object for knowledge management (Wilkins, Van Wegen, & De Hoog, 1997). According to Nonaka, Toyama, and Konno (2000), knowledge assets are both the inputs and the outputs of the knowledge-creating process.

### 2.2. Strategies of knowledge management

Organizations must strategically assess their knowledge resources and capabilities, and as well as need to broadly conceptualize their knowledge strategy to address any gaps (Zack, 1999). A successful KM strategy needs to identify a firm's key factors and leverage them to achieve business results (Massey et al., 2001). Sung and Gibson (2005) indicate four key factors to accelerate knowledge and technology transfer: communication, distance, equivocality, and motivation. Jordan and Jones (1997) suggest a framework that can be used to provide a profile of how knowledge is held and used within an organization, consisting of five categories: knowledge acquisition, problem-solving, dissemination, ownership, and memory.

In order to improve these KM initiatives and link them to business strategy, Maier and Remus (2003) suggest a process-oriented knowledge management approach to bridge the gap between human- and technology-oriented KM. Moreover, Hansen, Nohria, and Tierney (1999) divide KM strategies into two types: the codification strategy and the personalization strategy. Importantly, in the practice of modeling, evaluating, and selecting the KM strategy, it is necessary to take account of different conceptual dimensions and the procedure for KM strategy formulation. There are four different conceptual dimensions of KM strategy proposed by Campos and Sanchez (2003), including: epistemological dimension, ontological dimension, systemic dimension, and strategic dimension. Also, there is a valuable five-stage procedure for strategy formulation provided by Grant (1991), such as: analyzing the firm's resources; identifying the firm's capabilities; appraising the competitive

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