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The three tiers architecture of knowledge flow and management activities

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ABSTRACT

This study aims to develop a framework for Knowledge Management Activities (KMA) that reflects their multitier nature and accommodates the multilevel of flow that knowledge goes through in organizations. A survey method was employed for this study in Bahrain to test the research model behind that architectural framework. The results showed that the classical three tiers of IS platforms, i.e. backend, processing, and frontend, can be used as an overarching distribution to devise corresponding KMA tiers related to managing knowledge resources, knowledge creation, and knowledge application respectively. Moreover, they highlighted the different sets of KMA at each tier as well as provided evidences that support the relationships between them. Research implications related to advancing the current path of studies on KMA modeling as well as practice implications concerning the development of knowledge based management approaches for organizations have been discussed at the end of the paper.

1. Introduction

The idea that knowledge related activities can be directed to make organizations more capable of continuously generating sustainable competitive advantages, has attracted many researchers and executives in the last decade. It is widely believed that the truly lasting advantage an organization may have is the ability to continuously generate ideas and innovations related to its products, services, markets, and processes (Eisenhardt and Santos, 2002; Sambamurthy et al., 2003; Teece et al., 1997). This ability mainly depends on how knowledge is created, circulated, and applied in the organization (Garvin et al., 2008; Sher and Lee, 2004). Meanwhile, such activities play a significant role in helping the organization understand and continuously adapt to its environment (Cohen and Levinthal, 1990; Zollo and Winter,

2002). Moreover, it is also accepted that knowledge-based core competencies cannot be easily copied by competitors, due to the idiosyncratic nature of knowledge (Dixon, 2000). Naturally, knowledge resources are embodied in human brains and cannot be easily accessed by competitors. Due to the wide recognition of this strategic importance of knowledge, research in Knowledge Management (KM) has recently grown exponentially.

On the other extreme, KM field of study has been criticized of being surrounded by confusion, due to lack of maturity and clarity of its definitions and frameworks (Beesley and Cooper, 2008). Some researchers are even wondering whether KM classical concepts, fundamentals, and models have any practical benefits (Wilson, 2002).

The literature points at two main problems behind this lack of maturity in the KM field. The first is the confusion surrounding our understanding of the nature of knowledge and its relationship to information. We believe that this confusion mainly came from the classical distinction of tacit/explicit knowledge, which we often use to tell what knowledge is. This concept has been introduced in a way that confused knowledge, especially explicit one, with information. Moreover, this dichotomy seems to drive the research community in this field to a corresponding dualistic and yet myopic view for the strategic alternatives an organization may take to manage its knowledge resources. Examples for these dualistic strategies are: personalization vs. codification (Choi and Lee, 2003; Hansen et al., 1999; Scheepers et al., 2004), network vs. repository (Alavi, 2000; Wakefield, 2005), emergent vs. engineering (Hooff and Huysman, 2008), or human oriented vs. IT oriented strategies (Wilson, 2002).

The second problem is related to the inability to properly model knowledge flow and management activities in organizations. Although the current literature is replete of Knowledge Management Activities (KMA) frameworks, they all seem to be oversimplified and consequently unable to represent the multifaceted nature of KM.

Tackling these two problems, the purpose of this paper is to develop a framework that provides a better modeling for the different activities of knowledge flow and management, based on better understanding of the nature of organizational knowledge. The study will use a multi-layering logic to better reflect the distributed and architectural nature of these activities and at the same time the different flow levels that knowledge go through in the organization. The multitier and multilevel architecture introduced will be statistically tested in order to provide empirical evidences to support its practice implications as well as give a new departure for a rather modified path for the current KM body of knowledge.

2. Literature review

KM is widely seen as a set of activities that can be deliberately and/or systematically used to direct knowledge resources, inherent in all the organization business processes, to create strategic value for the organization. Based on this idea, many researchers have tried to identify and model such activities. Maybe the earliest and the most influential model is the knowledge flow cycle introduced by Nonaka and Takeuchi (1995). This model was built on the classical description of knowledge as a construct of a tacit/explicit dichotomy, where tacit is embedded in human brain, and explicit can be easily codified. Based on this distinction, the model suggested that knowledge creation happens when one type of knowledge of an individual or a group is transferred or converted into other individual or group's same or different type of knowledge. Therefore, it introduced four possible knowledge activities corresponding to four possible interactions or conversions, i.e. from: tacit to tacit, tacit to explicit, explicit to explicit, and explicit to tacit. These four activities are called: Socialization Externalization, Combination, and Internalization (SECI) respectively.

However, three streams of studies can be identified for KMA. One of these streams introduced KMA as the activities required to manage intellectual assets or stocks in organizations (Bontis et al., 2002; Curado, 2008; De Carolis, 2002; Teece, 1998). This perspective made researchers introduce KMA as activities related to accumulating and maintaining stocks or amounts of different required components of knowledge at certain points in time, through consistent human resources management (HRM) and human investment initiatives.

Following this line of thinking, Beijerse (2000) identified nine activities required for knowledge management in organizations: determine necessary knowledge; indentify available knowledge; evaluate knowledge gap; develop knowledge; acquire knowledge; lock knowledge; share knowledge; utilize knowledge; and evaluate and feedback. Similarly, Cepeda and Vera (2007) and Dove (1999) used this idea, related to evaluating knowledge gaps through comparing knowledge desired and knowledge available, to suggest their KMA models.