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The Relationship Between Knowledge Management and Innovation Performance



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ABSTRACT

This study examines the quantitative relationship between knowledge management, innovation, and performance. We aim to shed some light on the consequences of Knowledge Management (KM) activities on firm's innovation and performance. Organizations are unaware of real implications of KM. According to the literature review, we develop a research model showing a positive relationship between knowledge management, and performance as well as its impact on innovation, which in turn contributes to the firm's performance. Using data from 120 firms that are members of the Iranian Power Syndicate, this model was tested empirically. Based on the Structural Equation Model (SEM) results by Partial Least Square (PLS) method, research hypotheses were supported. Results show that KM activities impact innovation and organizational performance directly, and indirectly through an increase in innovation capability. It is found that knowledge creation, knowledge integration, and knowledge application facilitate innovation and performance. Knowledge creation has more significant effects on innovation speed, innovation quality, and innovation quantity, whereas innovation quality, knowledge creation, and knowledge integration has more significant effects on performance. Findings presented in this paper may help academics and managers in designing KM programs to achieve higher innovation, effectiveness, efficiency, and profitability.

1. Introduction

“The modern corporation, as it accepts the challenges of the new knowledge-based economy, will need to evolve into a knowledge-generating, knowledge-integrating and knowledge protecting organization” (Teece, 2000, p. 42). Hence, firms have to continuously work on their specific capabilities, (e.g. dynamic capabilities) to stay competitive. (Teece & Pisano, 1994). Skyrme (2001) defines Knowledge Management (KM) as ‘the explicit and systematic management of vital knowledge, and its associated processes of creation, organizing, diffusion, and exploitation’. From the practice perspective, firms are noticing the importance of managing knowledge if they want to remain competitive (Zack, 1999), and grow (Salojärvi, Furu, & Sveiby, 2005).

In the era of knowledge-based economy, resources and competencies are expected to be the crucial factors for organizations to survive in dynamic and competitive environment (Subramaniam & Youndt, 2005; Teece, Pisano, & Shuen, 1997). After pointing out that knowledge is an alternative to equipment, capital, materials, and labor to become the most important element in production, Drucker (1993) predicted that competitive advantage in future is determined by knowledge resources, or what is known as

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knowledge workers.

In the dynamic capabilities approach that roots in the resource-based view of the firm by Penrose (1959), a pivotal role for strategic management is opened (Kor & Mahoney, 2004). Among the management objectives proposed by this approach, the management of a firm's knowledge resources, with respect to a firm's innovativeness, has increasingly attracted attention over the last decade. An increasing amount of research on innovation and strategic management puts knowledge in the center of interest (Darroch, 2005; Davenport, De Long, & Beers, 1997; Grant, 1996; Hall & Andriani, 2002; Hargadon, 1998; Nonaka & Takeuchi, 1995; Swan, Newell, Scarbrough, & Hislop, 1999). In the innovation literature, knowledge is discussed as the element of a recombination process to generate innovation (Galunic & Rodan, 1998; Grant, 1996). Knowledge has an inherent value to be managed, applied, developed, and exploited. Knowledge can be seen as an asset that raises traditional asset questions to management such as when, how much, and what to invest in. As the necessary intangible assets for any organizations, knowledge should be elaborately managed. Consequently, both scholars and practitioners have increasingly paid great attention to an organization's ability to identify, capture, create, share, or accumulate knowledge (Jang, Hong, Bock, & Kim, 2002; Kogut & Zander, 1996; Michailova & Husted, 2003; Nonaka & Takeuchi, 1995). Owing to the particular properties of knowledge, however, knowledge assets require special attention. Knowledge is often embedded in employees, has features of a public good (Jaffe, 1986, p. 984; Liebeskind, 1997), and can hardly be bought in the market (Hall and Mairesse, 2006, p. 296). Therefore, innovating firms need a sophisticated Knowledge Management (KM) that pays a lot of attention to the special requirements of interactive knowledge, and dimensions of knowledge (creation). Particularly in the emerging distributed organizations, effectiveness is highly dependent on how well knowledge is shared between individuals, teams, and/or units (Alavi & Leidner, 2001; Argote & Ingram, 2000; Huseman & Goodman, 1998; Pentland, 1995). Knowledge sharing behaviors have been argued to contribute to the generation of various organizational capabilities such as innovation, which is vital to a firm's performance (Kogut & Zander, 1996). The importance of KM and its relationship with innovation is widely acknowledged. However, it is difficult to draw conclusions from the extant literature about the relationship between effective KM, innovation, and performance. Empirical work, however, is still in its infancy, and characterized by heterogeneous measurement approaches (Hall and Mairesse, 2006, p. 296). Various studies on technological (ICT-based) (Adamides & Karacapilidis, 2006), human resource (Carter & Scarbrough, 2001), or social aspects (Gupta & Govindarajan, 2000) of KM exist, focusing on innovation types in general (Darroch, 2005). Despite the importance of these results, approaches that attempt to measure firms' success with innovations achieved through KM when innovation success is quantified (measured in economic terms such as sales generated) are still scarce. The first step to fill this gap in the literature is presented in this paper.

This study aims to examine the relationships between knowledge management activities, innovation, and firm performance from a holistic perspective. According to a survey including 226 experts from 120 enterprises in Iran, which are the members of Iranian power syndicate, this study employed modeling to investigate the research hypotheses within their organizations.

Thus, the following questions may arise: whether Knowledge creation, knowledge integration, knowledge application influences firm performance directly? What are the key factors affected by knowledge management activities that lead to firm performance? Does KM, through innovation, have an impact on a firm's success? According to knowledge management literatures, this paper argues that Knowledge creation, knowledge integration, and knowledge application not only have positive relationship with firm performance directly but also influence innovation speed, quality and quantity that are related to firm performance.

The remainder of this paper proceeds as follow: Section 2 presents the literature review for introducing key constructs of our research. Section 3 develops a research model to depict hypothesized relationships. Section 4 provides research methodology and data collection. Data analysis and the findings are reported in Section 5. Finally, conclusions, limitations and further research suggestions are presented in Section 6.

2. Literature Review

Our literature review is centered on our main research question: “Does KM have impacts on a firm's success through innovation?” Before reviewing studies dealing with the link between KM and the success of innovation activities, we start our literature review with papers related to definitions and forms of KM.

2.1. Knowledge Management

Gold, Malhortra, and Segars (2001) examined the issue of effective Knowledge Management (KM) from the perspective of organizational capabilities. This perspective states that a knowledge infrastructure including technology, structure, and culture along with a knowledge process architecture of acquisition, conversion, application, and protection are essential organizational capabilities, or “preconditions” for effective knowledge management. The results provide a basis to understand the competitive predisposition of a firm as it enters a program of KM. Cui, Griffith, and Cavusgil (2005) also mentioned that KM capabilities consist of three interrelated processes: knowledge acquisition, knowledge conversion, and knowledge application (Gold et al., 2001). Knowledge is not only an important resource of a firm, but it also is a main source of competitive advantage (Gold et al., 2001; Grant, 1996; Jaworski & Kohli, 1993). Therefore, KM capabilities refer to the knowledge management processes that develop, and use knowledge within a firm (Gold et al., 2001).

Several definitions have been around KM (Alavi & Leidner, 2001; Coombs & Hull, 1998; Davenport & Prusak, 1998; Nonaka & Takeuchi, 1995; Probst, Raub, & Romhardt, 1999). Different approaches to KM concentrate on the creation, diffusion, storage, and application of existing, or new knowledge (e.g. Coombs & Hull, 1998). Wiig (1997) puts his emphasis on the management of existing knowledge, Wiig states that the purpose of KM is “to maximize the enterprise's knowledge related effectiveness and returns from its

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