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An elusive antecedent of superior firm performance: The knowledge management factor☆

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ABSTRACT

Knowledge management (KM) concepts, principles, and technologies provide a foundation for understanding and building systems for acquiring, assimilating, selecting, generating, and emitting knowledge—a crucial resource of the firm. In the knowledge management community, it is commonly contended that knowledge, and capabilities for processing it, comprise a major resource that can differentiate one firm from another in the sense of yielding better performance or a competitive edge. However, aside from anecdotes, there has been little to substantiate this contention. Can any empirical link be discovered between a firm's KM success and that firm's financial performance? To develop an answer to this question, we use an independent research company's reports of firms judged to be highly successful in their KM initiatives, plus related data reported by COMPUSTAT. As an initial investigation of the linkage between KM performance and firm performance, as measured by financial ratios, this study uses the Matched Sample Comparison Group methodology to evaluate research hypotheses. The analysis reveals a heretofore elusive antecedent of firm performance—evidence that superior KM performance is indeed a predictor of superior bottom-line performance. This study contributes to the information systems (IS) literature by demonstrating that KM, a basic foundation for IS, is an important factor to consider from the standpoint of achieving strong financial performance. As such, it suggests that KM furnishes an important context for understanding designs, applications, and possibilities for IS with respect to achieving such performance. In the context of devising and executing KM initiatives, both technological and human treatments of knowledge need to be cultivated and integrated in ways that lead to superior KM performance. This study also contributes to the management literature by going beyond anecdotes and case studies in buttressing the proposition that a firm's KM competencies are an important ingredient in that firm's performance. It solidifies the raison d'etre for investigating KM phenomena and methods (computer-based and human), both within and across modern organizations. It gives practicing managers evidence that bottom-line benefits are indeed associated with superior KM strategy and execution.

1. Introduction

Interest in knowledge management (KM) has risen steadily since the 1990s to a point where many firms regard it as a key element of their operations and strategies. In a related vein, the same period has witnessed rapid growth in the number and diversity of scholars who conduct research in and/or who teach about KM—to a point where it is seen by some as an emergent discipline [24,37,76,78]. In general terms, knowledge management is "an entity's systematic and deliberate efforts to expand, cultivate, and apply available knowledge in ways that add value to the entity, in the sense of positive results in accomplishing its objectives or fulfilling its purpose" [43, p. 593]. Organizations have turned to KM practices and technologies to consolidate, grow, and reconcile the knowledge assets that enable them to compete in today's turbulent business environment.

For a considerable time now, KM has been viewed as being critical for effective execution of an organization's operations [22,30,34,56,64,79]. Practitioners and researchers contend that KM, if done appropriately, can have important strategic consequences for firms—improving their competitive positions by increasing firm productivity [87], strengthening agility [29], maximizing intellectual assets [83], fostering customer loyalty [50], enhancing innovation [2,65], generating shareholder value [11], etc.

However, beyond anecdotal evidence and individual case studies, there is only limited quantitative empirical support linking a firm's KM initiatives to its performance [66]. Because systematic empirical investigations of this link are scarce and mostly based on perceptions of embedded participants, there is some doubt about the generality of

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claims that superior KM performance is indeed an antecedent or predictor of superior firm performance. That is, this linkage—while thought by many to exist—has been elusive. Accordingly, there are calls for empirical expeditions to settle the issue.

Argote and Ingram [4] theorize that embedding knowledge in people, tools, and processes can result in competitive advantage, and then call for empirical studies to understand conditions under which such initiatives enhance competitiveness. Similarly, the knowledge chain theory, which theorizes that any of nine basic KM activities can be performed in ways that lead to advantages in productivity, agility, innovation, and/or reputation, draws attention to a need for more empirical research into connections between KM activities and competitiveness [44]. More recently, Feng et al. [32] contend that while KM research has concentrated on concepts, plus the application of various technologies for acquiring and storing knowledge, there is a need to study whether KM initiatives can impact firm performance. In line with this assertion, Tanriverdi [82] argues that a better understanding of possible connections between KM capability and firm performance depends on both theoretical and empirical research.

Here, we respond to this need by investigating business effects of successful KM initiatives. More specifically, the study develops a theoretical link between KM performance and firm performance, and empirically examines this association in terms of both profit and cost ratios. By KM performance, we mean the degree to which an organization's KM activities leverage its resources to meet the goals or fulfill the purposes of KM initiatives [47]. This view is in keeping with that advanced by Darroch [21]: effective KM allows a firm to glean greater value from all available resources (not just its knowledge resources [42]), serving as a coordinating mechanism for transforming the resources into capabilities. In gauging KM performance, we do *not* rely on perceptions of individuals within firms being examined, but rather on eight years of ratings by large international panels of KM experts independent of the firms being rated. Similarly, our measurements of firm performance do *not* involve perceptions of those embedded within the firms, but rather accounting-based performance figures for the firms. Using an organizational level of analysis, this study investigates the elusive linkage within a multi-industry context, suggesting that the results are likely to be applicable and generalizable across organizations as well as industries [88].

We begin with research background that, as a summary and elaboration of a position paper [47], provides a context for appreciating this study. Covering both theoretical foundations and prior empirical studies, this background leads to a statement of hypotheses. Then, we present the research methodology, followed by a section that describes the results of data analysis. Finally, we discuss implications, contributions, and limitations of this research.

2. Background

Knowledge management denotes any process that involves activities of generating new knowledge through derivation or discovery, acquiring valuable knowledge from outside sources, selecting needed knowledge from internal sources, altering the state of knowledge resources, and embedding knowledge into organizational outputs [43]. Mukherjee et al. [69] suggest that knowledge is a critical asset for competitive success, arguing that the *way* a firm creates new knowledge determines its effectiveness. The task of attempting to find a definitive relationship between the effects of a firm's KM activities and that firm's performance is not a trivial undertaking [61]. Even though knowledge is widely regarded as a strategic resource, KM's impacts on business performance are not yet well understood, as firms seem to be "unable to … estimate the value generated by KM initiatives in terms of impact on business performance" [14, p. 576]. Nevertheless, it is important for a firm's senior leaders to know if, and the extent to which, KM performance is linked to firm performance. Here, we review progress in this regard.

2.1. Knowledge resources and firm performance

In this section, we summarize and expand on a theoretical base outlined by Holsapple and Wu [47]: "the resource-based theory (RBT) of the firm aims to explain why firms are able to gain and sustain competitive advantages [3,85]. The theory asserts that the main driver of firm performance is a set of *unique* firm resources that are valuable, rare, difficult to imitate, and non-substitutable by other resources [8,19]. According to the theory, such resources are usually rent-yielding and likely to survive competitive imitation when protected by isolating mechanisms such as time-compression diseconomies, historical uniqueness, embeddedness, and causal ambiguity [8,28,75]. Moreover, *an important assumption of the theory is that the resources needed to conceive, choose, and implement strategies are heterogeneously distributed across firms, which in turn are posited to account for differences in firm performance* [36]."

Examples of resources considered by RBT include assets that are human, monetary, material, technological, brand recognition, and *knowledge* [9]. One line of research emanating from RBT not only identifies a firm's knowledge as a key source of competitive advantage, but also holds that differences in firms' performances are due to differences in their knowledge processors, knowledge processes, and organizational knowledge [20,32,61,81]. Knowledge processors are systems—both human and computer-based—that manipulate knowledge resources; knowledge processes are comprised various configurations of knowledge manipulation performed by the processors; and organizational knowledge is what is being manipulated [43]. The basic idea is that it is possible to intentionally manage knowledge in a way that yields relatively superior performance. This takes the form of KM initiatives that are *designed* to squeeze greater value from knowledge resources through more effective knowledge processors (technological and human) and improved knowledge processes involving the manipulation activities of acquisition, selection, assimilation, generation, and emission of knowledge [43].

2.2. Previous knowledge management studies

Unlike financial performance, which is characterized in terms of standard accounting measures, there are no standard means for measuring ingredients that underlie KM performance. Practitioners struggle to ascertain measures that can work in their own respective organizations; to date, these efforts tend to be firm-specific [77]. Hanley and Malafsky [38] offer a fairly detailed and practical examination of issues such as what to measure, how to measure it, and messages conveyed by those measures. Now, one might ask whether knowledge accounting (KA) can be developed to adequately deal with knowledge valuation concerns. Examining economic and institutional pressures that condition knowledge accounting efforts, Stone and Warsono [80] identify and analyze six alternative KA approaches. They conclude that each extant KA approach is imperfect in the sense of not being simultaneously relevant, reliable, and objective.

In Table 1, we summarize previous research studies concerned with measuring KM and its relationship to firm performance. Synthesizing the threads that run through prior research on the relationship between KM performance and firm performance, some major themes emerge. First, it appears that KM performance is an important factor for managers to consider. Second, many of the studies (but not all) show a positive relationship between some aspect(s) of KM performance and some aspect(s) of firm performance, suggesting the linkage is worthy of further investigation. Third, most of the empirical findings are based on perceptions of independent and dependent variables by persons embedded in the firms being studied. Results of an in-depth study of evaluation abilities in large multinational firms