Knowledge Chain Activity Classes: 
Impacts on Competitiveness and the Importance of Technology Support

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ABSTRACT

Just as Porter’s value chain model identifies classes of business activity that can be performed in ways that contribute to a firm’s competitiveness, the knowledge chain model contends there are classes of knowledge management (KM) activity that can be performed in ways that enhance firm competitiveness. These KM activities pervade the value chain, being inherent in the implementation of each value chain activity. Derived from a collaboratively engineered ontology of knowledge management, the knowledge chain model is supported by anecdotal evidence and a survey has found support for the propositions that its activity classes are linked to enhanced productivity, agility, innovation, and reputation. Here, we present a study of leaders of KM initiatives that examines each of the nine knowledge chain classes in terms of its competitive impact and the extent to which its positive impact on competitiveness is associated with the importance of technology in performing activities within that class. The study provides confirming evidence that each of the knowledge chain activity classes can be performed in ways that contribute to competitiveness. Moreover, we find that for five of the activity classes there is a significant positive correlation between impact on competitiveness and the importance of computer-based technology in implementing the class’s activities.

Keywords: agility; competitiveness; innovation; knowledge chain; knowledge management; productivity; reputation; technological support

INTRODUCTION

Interest in knowledge management (KM) as a research field has exploded over the past decade. In the information systems (IS) faculty directory of 1996, one person reports “knowledge management” as a major topic of research focus (DeGross, 1996); by 2006, the IS faculty directory identifies over 600 people with a “knowledge management” research focus (http://www.isfacdir.org/). A flurry of special issues on KM in leading journals from 2001 to 2003 has matured into launches of new scholarly journals devoted to KM (e.g., International Journal of Knowledge Management, Knowledge Management Research and Applications) to complement Journal of Knowledge Management and Knowledge and Process Management which date from the mid-1990s. Sufficient critical mass has developed to warrant major KM
reference books such as a 1500-page handbook (Holsapple, 2003) and 900-page encyclopedia (Schwartz, 2006), plus KM tracks in major conferences (e.g., ICIS, AMCIS, DSI, HICSS) have become standard.

One driving force for this interest is a need to understand the relationship between KM and competitiveness (Dutta, 1997). Knowledge is considered the most valuable and powerful asset that an organization can possess (Stewart, 1997). Being able to effectively manage knowledge has been noted by researchers in the field of competitive advantage as the only factor that can provide an organization with a competitive edge (Prusak, 1996). In order for practitioners to manage knowledge effectively, it is imperative that they have some type of guidelines when developing their KM initiatives. Such guidance could come from a definitive model that gives practitioners a structure for organizing their analyses of activities involved in KM and for understanding how they impact competitiveness.

The knowledge chain model is an initial step in this direction (Holsapple & Singh, 2000). This model is based on part of a KM ontology developed by an international panel of KM practitioners and researchers (Holsapple & Joshi, 2000, 2001, 2002). The knowledge chain model identifies nine activity classes that are performed by organizations in their conduct of KM. Evidence from experiences reported in the KM literature indicates that each of these classes of activities is a potential source of competitive advantage and that this source of competitive advantage can be approached from one or more of four angles: productivity, agility, innovation, and/or reputation – the PAIR directions (Holsapple & Singh, 2001). To date, the one empirical study of the knowledge chain model offers support for the proposition that each of the nine basic KM activities can be performed in ways that enhance a firm’s performance in one or more of the PAIR directions (Holsapple & Singh, 2005). Here, we report on a further empirical study of the knowledge chain model which examines linkages of KM activities with both performance and technology usage. It uses a survey methodology and analyzes perceptions of leaders of KM initiatives. For each of the model’s nine KM activities, we examine two propositions. First, the KM activity can contribute to an organization’s competitiveness. Second, the greater the importance of technology support in performing the activity, the greater the contribution to competitiveness realized from that activity.

Results of this study furnish an understanding of contemporary practices and views regarding the relationships between performance of KM activities and impacts on competitiveness, with particular emphasis on the role of technology in performing KM activities in ways that enhance competitiveness. For practitioners, this understanding can help in recognizing both needs and opportunities as they evaluate and plan their own organizations’ KM initiatives. For researchers, this understanding can inform and help stimulate future investigations of the relationship between KM and competitiveness. For technology vendors, this understanding can point out gaps in present KM technologies and, perhaps, spur advances in those areas.

The rest of this article is organized as follows. The next section offers a brief overview of the knowledge chain model. The third section develops dual propositions for each of the knowledge chain’s nine KM classes. Next, we describe the research methodology for exploring these. Results of the study are then presented, followed by a discussion section. We conclude by pointing out implications for practitioners and researchers.

THE KNOWLEDGE CHAIN MODEL

Knowledge management in an organization manifests as patterns of KM episodes (Johnson, 1991; Wagner, 1992). Each knowledge management episode begins with the recognition of a knowledge need (or opportunity) and ends when the need is either satisfied or the effort is abandoned (Joshi, 1998). KM episodes can be independent or interdependent. One KM episode can influence other episodes or even
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