ABSTRACT

For sustained performance in a dynamic market environment, individuals within an organization must operate in a social network (SN) that promotes knowledge exchanges, encourages knowledge acquisition, and facilitates dissemination of domain knowledge pertinent to the execution of job-related tasks. Research on Knowledge Social Networks (KSN) has hitherto focused on interpersonal social network structures and its impact on knowledge outcomes with little attention being paid to the quality of domain knowledge possessed by knowledge sources and the value of resultant knowledge flows. This paper evaluates the quality of knowledge sources used in the social network by robustly measuring knowledge structures, the underlying foundation of conceptual knowledge. A field study of a simulated market environment with competing organizations found the KSN to be central in explaining organizational performance. However, its interplay with the domain knowledge structure of knowledge sources provided deeper insights into its link with organizational success.

Keywords: Knowledge Exchanges, Knowledge Social Networks (KSN), Knowledge Structures, Mental Models, Organizational Success

1. INTRODUCTION

Organizations are composed of individuals having varying degrees of knowledge and skill proficiency, ranging from the novice to the expert. For sustained organizational performance, it is imperative that individuals within the organization are in a perpetual learning mode, scanning the environment both within and outside of their organization with the intent of acquiring and disseminating knowledge relevant to their work activities. However, knowledge acquisition by individuals in an organization cannot take place in the abstract and occurs primarily within the context of job-related roles through social interaction, communication, and collaboration with other individuals (Brown & Duguid, 1991; Lave & Wenger, 1991). The acquisition of accurate domain knowledge and its usage in authentic domain activities can lead

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to “cognitive apprenticeship”, enabling novices to move from the periphery of a learning group to its center, and becoming experts within the group (Lave & Wenger, 1991). This process of knowledge acquisition, knowledge transfer, and user learning, facilitated by collaborative social relationships in the organizational workplace can be captured using social networks.

Social Networks (SN) focus on relationship ties between individuals (Scott, 2000). Individuals are regarded as being embedded within an organization, connected with other individuals through a complex network of relationships and structures, the strength and diversity of which shapes and moderates their preferences, actions, and behavior (Brass, 1995). The emphasis here is on the relationships between individuals rather than on the characteristics of the individuals. Extensive research has been conducted on knowledge exchanges through social networks – referred to as knowledge social networks (KSN) (see Phelps, Heidl, & Wadhwa, 2012 for a review). While the structural characteristics of KSNs and its impact on knowledge outcomes and organizational performance has been well established, not much attention has been paid to the expertise level of knowledge sources within a KSN and its possible impact on the quality of knowledge exchanges, such as its consistency, accuracy, and validity (Phelps, Heidl, & Wadhwa, 2012). This exploratory study introduces the Pathfinder analysis of knowledge structures for assessing the expertise level of knowledge sources in a KSN and the quality of the resultant knowledge exchanges within an organization. From a theoretical perspective, this paper introduces a robust technique for differentiating knowledge competency of individuals within a social network. At a practical level, it provides a roadmap for optimizing market performance by leveraging the cohesiveness and accuracy of knowledge flows within and between organizations.

The rest of the paper is structured as follows. The concepts underlying SNs are first examined. This is followed by a discussion on measuring and assessing knowledge structures for evaluating the individual’s quality of knowledge of within KSNs. These concepts are then validated in the context of a field study using students grouped into organizational teams competing against one another in a simulated market environment. The paper concludes with a discussion on its limitations and identifies avenues for future research.

2. SOCIAL NETWORK STRUCTURES AND KNOWLEDGE OUTCOMES

SN analysis focuses on relationships between individuals. Every individual is viewed as a node and the relationship between individuals are treated as a tie. Figure 1a depicts a network of five individuals (A, B, C, D, and E) and the ties between them. While the node in Figure 1a represents an individual, it is also possible to treat the node as a group or an organization, in which case the ties would relate to inter-group or inter-organizational interactions. The nature of the ties could be varied; research has examined ties relating to friendship, communication, information, workflow, knowledge, advice etc. (Brass, 1995).

SN analysis is based on ties existing between nodes. At the simplest level, the presence or absence of ties between nodes can be used to develop a SN and its associated measures. For example, data collection questionnaires ask the respondent whether they have or not had an interaction with another individual in the network. A more refined approach is to incorporate the frequency of interactions (for example, A interacts with B a certain number of times in a given time period), leading to the concept of strong ties (those with frequent interactions) and weak ties (those with infrequent interactions). Other approaches include stability (longevity of tie), multiplexity (extent to which nodes are linked together by multiple relationships), direction, and reciprocity (extent to which a relationship is bi-directional) (Brass, 1995, p 44).

The network, as anchored around an individual, is the ego network (for example, the ego network of A will be composed of actors B, C, D, and E). The absence of a tie is referred to as a structural hole. Ties may be direct (for...
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