Chapter VII

An Experimental Analysis of the Effectiveness and Efficiency of Teams with Partial Problem Domain Knowledge

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ABSTRACT
Knowledge Management Systems are increasingly becoming important to both practitioners and researchers. One area of application of such systems is the formation of organizational teams with appropriate knowledge content to solve complex and novel problems. A common predicament, however, is that teams are often formed with only partial problem domain knowledge. This study examines if teams that have partial problem domain knowledge are more effective and efficient than teams that do not have specific problem domain knowledge. It finds that partial problem domain knowledge may in fact be worse than no problem domain knowledge. Several implications for researchers and practitioners are derived from this result.

INTRODUCTION
Information systems that focus on creating, gathering, organizing and disseminating an organization’s knowledge are known as Knowledge Management Systems...
The importance of KMS is underscored by the fact that several organizations are now taking steps to manage their knowledge explicitly by appointing chief knowledge officers (CKOs) to do so (Holsapple and Joshi, 2000). CKOs perform a variety of roles, including serving as the chief designer of the knowledge architecture, the head technologist for knowledge technologies, and the primary procurement officer for external knowledge content (Grover and Davenport, 2001). Clearly, there is a growing recognition that knowledge has become an important basis for competitive advantage between firms (Guay, 2001; Nidumolu et al., 2001). Knowledge has even been suggested as the most strategically significant resource for an organization (Pfeffer and Sutton, 2000; Grant, 1996).

Typically however, knowledge in organizations is gained through experience and interactions with both processes and individuals (Schulz, 2001; Mulholland and Zdrahal, 2001). The recognition of this nature of knowledge is evident in the emphasis placed in many organizations on “learning by doing, where newcomers to the organization are expected to gain much of their knowledge and skills through a hands-on approach, even though it may be relearning something that someone else in the organization already knows (Nidumolu et al., 2001). Knowledge management on the other hand aims at knowledge reuse within organizations and the development of organizational memory systems to aid this reuse (Markus, 2001).

**REVIEW OF LITERATURE**

KMS can take the form of knowledge repositories or of data maps. Knowledge repositories are databases of documents written by knowledgeable individuals whereas knowledge maps are searchable indexes of expertise held by individual employees of an organization (Davenport and Prusak, 1998). Using the former, an organization can gain immediate access to knowledge relevant to its needs, and with the latter it can best utilize the individual strengths of its employees.

According to Gray (2000), by making knowledge searches more effective, KMS can improve the variety of knowledge present on problem-solving teams. Teams are collectives that have the characteristic of shared interdependent work (Lovelace, Shapiro and Weingart, 2001; Dyer, 1977). They are a useful mechanism for pooling and using the diverse knowledge and skills of employees (Drucker, 1994). Improved team knowledge diversity can lead to more accurate and complete analysis of complex problems, thereby improving the effectiveness of the solutions teams generate. This ability of KMS is important because organizations are increasingly using teams to solve complex problems. In fact, according to Gordon (1992), 82 percent of companies with 100 or more employees use team structures. Also, 68 percent of Fortune 1,000 companies use self-managing teams (Lawler, Mohrman and Ledford, 1995).

KMS that can help create teams with appropriate knowledge content to solve problems can be invaluable to an organization. In fact, in companies such as Boeing,
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