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Knowledge manipulation activities: results of a Delphi study

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Abstract

Knowledge-based organizations are hosts for multitudes of knowledge management (KM) episodes. Each episode is triggered by a knowledge need and culminates with the satisfaction of that need (or its abandonment). Within an episode, one or more of the organization's processors (human and/or computer-based) manipulate knowledge resources in various ways in an effort to meet the need. This paper identifies and characterizes a generic set of elemental knowledge manipulation activities that can be arranged in a variety of patterns within KM episodes. It also indicates possible knowledge flows that can occur among the activities. This descriptive framework was developed using conceptual synthesis and a Delphi methodology involving an international panel of researchers and practitioners in the KM field. The framework can serve as a common language for discourse about knowledge manipulation. For researchers, it suggests issues that deserve investigation and concepts that must be considered in explorations of KM episodes. For practitioners, the framework provides a perspective on activities that need to be considered in the design, measurement, control, coordination, and support of an organization's KM episodes. © 2002 Elsevier Science B.V. All rights reserved.

Keywords: Delphi study; Framework; Knowledge management episode; Knowledge; Manipulation; Knowledge-based organization

1. Introduction

A hallmark of the emerging knowledge economy is the rise of knowledge-based organizations [14]. In these, knowledge is regarded as a crucial resource processed by a joint human–computer system in changing the organization's state of knowledge and of producing outputs. Individually, each human or automated processor is a knowledge worker that has a particular set of skills for manipulating knowledge. Collectively, an organization's knowledge processors are arranged into a system that amplifies the knowledge work to be accomplished.

Knowledge management (KM) involves attempts to get the right knowledge to the right processor at the right time in the right representation and at the right cost. The task of recognizing and satisfying the needs of a modern organization is both important and challenging. These can be modest or voluminous, simple or complex, routine or novel, well specified or vague, stable or volatile, of low priority or urgent. We shall term what occurs from the time of recognizing a knowledge need through its satisfaction (or abandonment) as a KM *episode* which may be independent or interdependent with other episodes and active at any given time in an organization. Each involves one or more knowledge processors operating on some knowledge resources and constrained or guided by various influences.

Fig. 1 illustrates a KM episode. But what knowledge manipulation activities are allowed in a KM

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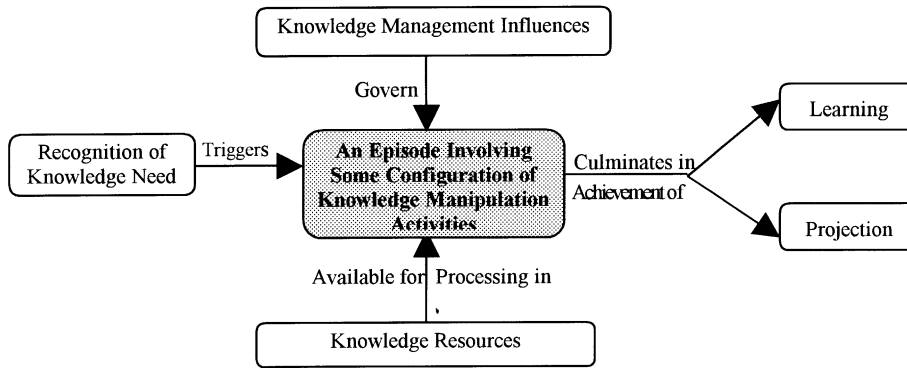


Fig. 1. Architecture of a KM episode during the conduct of knowledge management.

episode? The answer to this question is important. Indeed, a recent survey found that a majority of respondents preferred an activity-oriented KM [20]. However, there has been little agreement among researchers or practitioners on what they are [29].

This paper presents a descriptive framework of basic knowledge manipulation activities that can occur in an episode. The framework was developed through a Delphi process involving an international panel of over 30 KM researchers and practitioners. The result is a relatively comprehensive, unified perspective on the kinds of knowledge manipulation activities that can occur in a KM episode. This offers several benefits. It can serve as a common language for discussion about an organization's KM episodes. It gives a foundation for suggesting how each of the knowledge manipulation activities should be accomplished and how they should be configured within episodes. Its characterization of each manipulation activity is suggestive of functionalities that would be helpful to include in the design of computer-based processors for performing or supporting the activity. It could be applied to highlight and investigate KM issues, such as a means for measuring, controlling, and coordinating manipulation activities, etc.

2. Background

A comparative analysis of KM frameworks in the literature indicates that they identify various KM activities [11]. These are summarized in Table 1. Some frameworks treat these activities at an elemental

level, while others deal with higher-level knowledge activities. For instance, the activities identified by Arthur and APQC [2], Wiig [31], van der Spek and Spijkervet [30], Alavi [1], and Szulanski [28] appear to be more elemental than those identified by Leonard-Barton [17], and Choo [6]. The higher-level activities seem to be groupings of more elemental activities identified by Arthur and APQC [2].

An examination of the activities reveals considerable variation. No one view subsumes the others. This suggests there is a need for a generic framework of knowledge manipulation activities that not only describes each activity clearly and completely but also identifies their possible inter-relationships.

Here, the focus is on elemental activities (and their sub-activities) rather than higher-level, composite ones. The focus is on activities that directly manipulate knowledge and produce knowledge flows within a KM episode, rather than activities that start or control the episode. The latter managerial influences on KM episodes have been addressed elsewhere [13]. This framework can be applied to multiple concepts of knowledge.

3. Methodology

Through a synthesis of concepts, best practices, and issues in the literature, an initial descriptive framework of knowledge manipulation activities was developed. This evolved through a Delphi process, involving two

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