Knowledge Management Success Models

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INTRODUCTION

Alavi and Leidner (2001, p. 114) defined knowledge management systems (KMSs) as "IT-based systems developed to support and enhance the organizational processes of knowledge creation, storage/retrieval, transfer, and application." They observed that not all KM initiatives will implement an IT solution, but they support IT as an enabler of KM. Maier (2002) expanded on the IT concept for the KMS by calling it an ICT system that supported the functions of knowledge creation, construction, identification, capturing, acquisition, selection, valuation, organization, linking, structuring, formalization, visualization, distribution, retention, maintenance, refinement, evolution, access, search, and application. Stein and Zwass (1995) define an organizational memory information system (OMIS) as the processes and IT components necessary to capture, store, and bring to bear knowledge created in the past on decisions currently being made. Jennex and Olfman (2004) expanded this definition by incorporating the OMS into the KMS and adding strategy and service components to the KMS.

Additionally, we have different ways of classifying the KMS and/or KMS technologies, where KMS technologies are the specific IT and ICT tools being implemented in the KMS. Alavi and Leidner (2001) classify the KMS and KMS tools based on the knowledge lifecycle stage being predominantly supported. This model has four stages: knowledge creation, knowledge storage and retrieval, knowledge transfer, and knowledge application. It is expected that the KMS will use technologies specific to supporting the stage for which the KMS was created to support. Marwick (2001) classifies the KMS and KMS tools by the mode of Nonaka's (1994) SECI model (socialization, externalization, combination, and internalization) being implemented. Borghoff and Pareschi (1998) classify the KMS and KMS tools using their knowledge management architecture. This architecture has four classes of components—repositories and libraries, knowledge-worker communities, knowledge cartography or mapping, and knowledge flows—with classification being based on the predominant architecture component being supported. Hahn and Subramani (2001) classify KMS and KMS tools by the source of the knowledge being supported: a structured artifact, structured individual, unstructured artifact, or unstructured individual. Binney (2001) classifies the KMS and KMS tools using the knowledge spectrum. The knowledge spectrum represents the ranges of purposes a KMS can have and include transactional KM, analytical KM, asset management KM, process-based KM, developmental KM, and innovation and creation KM. Binney does not limit a KMS or KMS tool to a single portion of the knowledge spectrum and allows for multipurpose KMS and KMS tools. Zack (1999) classifies KMS and KMS tools as either integrative or interactive. Integrative KMS or KMS tools support the transfer of explicit knowledge using some form of repository and support. Interactive KMS or KMS tools support the transfer of tacit knowledge by facilitating communication between the knowledge source and the knowledge user. Jennex and Olfman (2004) classify the KMS and KMS tools by the type of users being supported. Users are grouped into two groups based on the amount of the common context of understanding they have with each other, resulting in the classifications of process- or task-based KMS and KMS tools, or generic or infrastructure KMS and KMS tools.

Regardless of the classification of the KMS, once a KMS is implemented, its success needs to be determined. Turban and Aronson (2001) list three reasons for measuring the success of a knowledge management system.

- To provide a basis for company valuation
- To stimulate management to focus on what is important
- To justify investments in KM activities

All are good reasons from an organizational perspective. Additionally, from the perspective of KM academics and practitioners, the measurement of KMS success is crucial to understanding how these systems should be built and implemented.

To meet this need, several KM and/or KMS success models are found in the literature. Models of KM success are included as a Churchman (1979) view of a KMS can be defined to include the KM initiative driving the implementation of a KMS (also, the counterview is valid as looking at KM can also include looking at the KMS).

What is KM or KMS success? This is an important question that has not been fully answered as researchers

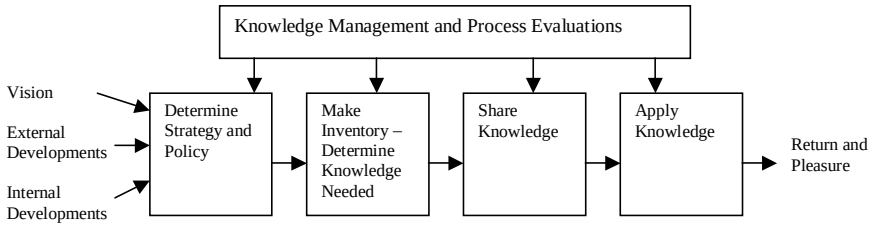
are finding it difficult to quantify results of KM and KMS efforts. This article presents several KM and KMS success models. Two basic approaches are used to determine success. The first looks at the effective implementation of KM processes as the indicator of a successful implementation, with the expectation that effective processes will lead to successful knowledge use. These models identify KM processes by looking at KM and KMS success factors. The second approach looks at identifying impacts from the KM or KMS implementation, with the expectation that if there are impacts from using knowledge, then the KM or KMS implementation is successful. These models consider success a dependent variable and seek to identify the factors that lead to generating impacts from using knowledge. The following models, found through a review of the literature, use one or both of these approaches to determine KM or KMS success.

KNOWLEDGE MANAGEMENT SUCCESS MODELS

Bots and de Bruijn: Knowledge Value Chain

Bots and de Bruijn (2002) assessed KM and determined that the best way to judge good KM was through a knowledge value chain. Good KM is defined as using KM to improve organizational competitiveness. However, measuring the KM impact on competitiveness is considered difficult, so ultimately it was concluded that good KM is when the KM initiative matches the model provided in Figure 1 and the KM processes are implemented well. KM is assessed for effectiveness at each step of the knowledge process and is good if each of the indicated activities is performed well with the ultimate factor being that the KM enhances competitiveness. Figure 1 illustrates the KM value chain. The model was developed by viewing and contrasting KM through an analytical (technical) perspective and an actor (user) perspective. These perspectives are conflicting, and KM assessment occurs by determining how well the KMS meets each perspective at each step.

Figure 1. Bots and de Bruijn (2002) KM value chain



Massey, Montoya-Weiss, and O'Driscoll KM Success Model

Massey, Montoya-Weiss, and O'Driscoll (2002) present a KM success model based on their Nortel case study. The model is based on the framework proposed by Holsapple and Joshi (2001) and reflects that KM success is based on understanding the organization, its knowledge users, and how they use knowledge. It recognizes that KM is an organizational change process and KM success cannot separate itself from organizational change success, with the result being that KM success is essentially defined as improving organizational or process performance. The model is presented in Figure 2. Key components of the model are the following.

- **KM Strategy:** The processes using knowledge and what that knowledge is; the sources, users, and form of the knowledge; and the technology infrastructure for storing the knowledge
- **Key Managerial Influences:** Management support through leadership, the allocation and management of project resources, and the oversight of the KMS through the coordination and control of resources and the application of metrics for assessing KMS success
- **Key Resource Influences:** The financial resources and knowledge sources needed to build the KMS
- **Key Environmental Influences:** The external forces that drive the organization to exploit its knowledge to maintain its competitive position

Lindsey KM Success Model

Lindsey (2002) considered KM success as being defined by Kaplan and Norton's (1992) balanced-scorecard