Chapter 76
Knowledge Management Systems

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INTRODUCTION

Knowledge management systems (KMSs) are seen as enabling technologies for an effective and efficient knowledge management (KM). However, up to date the term knowledge management system has often been used ambiguously. Examples are its use for specific KM tools, for KM platforms, or for (a combination of) tools that are applied with KM in mind. So far, investigations about the notion of KMS remain on the abstract level of what a KMS is used for, for example, "a class of information systems applied to managing organizational knowledge" (Alavi & Leidner, 2001, p. 114). The following two sections define the term KMS and obtain a set of characteristics that differentiates KMS from traditional information systems, such as intranet infrastructures, document- and content-management systems, groupware, or e-learning systems. Then, two ideal architectures for KMS are contrasted. It is discussed which KMS architecture fits what type of KM initiatives, and some empirical findings on the state of practice of KMS are summarized. The last sections give an outlook on future trends and conclude the article.

BACKGROUND

A review of the literature on information and communication technologies to support KM reveals a number of different terms in use, such as knowledge warehouse, KM software, KM suite, KM (support) system, and KM technology as well as learning-management platform, learning-management portal, learning-management suite, learning-management system, or organizational-memory (information) system (e.g., Alavi & Leidner, 2001; Maier, 2004; McDermott, 1999; Mentzas, Apostolou, Young, & Abecker, 2001; Nedeß & Jacob, 2000; Schwartz, Divitini, &

Brasethvik, 2000; Seifried & Eppler, 2000; Stein & Zwass, 1995). In addition to these terms meaning a comprehensive platform in support of KM, many authors provide more or less extensive lists of individual tools or technologies that can be used to support KM initiatives as a whole or for certain processes, life-cycle phases, or tasks thereof (e.g., Allee, 1997; Binney, 2001; Borghoff & Pareschi, 1998; Hoffmann, 2001; Jackson, 2003; Meso & Smith, 2000; Ruggles, 1998).

TOWARD A DEFINITION OF KNOWLEDGE MANAGEMENT SYSTEMS

Recently, the terms KM tools and KMS have gained wide acceptance both in the literature and on the market. Consequently, we use the term KMS being well aware that there are a number of similar conceptualizations that complement the functionality and architectures of KMS. In the following, we will summarize the most important characteristics of KMS as found in the literature.

Goals

The primary goal of KMS is to bring knowledge from the past to bear on present activities, thus resulting in increased levels of organizational effectiveness (Lewin & Minton, 1998; Stein & Zwass, 1995). Thus, a KMS is the technological part of a KM initiative that also comprises person-oriented and organizational instruments targeted at improving the productivity of knowledge work (Maier, 2004). KM initiatives can be classified according to the strategy in human-oriented personalization initiatives and technology-oriented codification initiatives (Hansen, Nohria, & Tierney, 1999). They can further be distinguished according to the scope into enterprise-specific initiatives and initiatives that cross organizational boundaries. According to organizational design,

initiatives can establish a central organizational unit responsible for KM, or they can be run by a number of projects and/or communities. The initiatives can focus on a certain type of content along the knowledge life cycle, for example, ideas, experiences, lessons learned, approved knowledge products, procedures, best practices, or patents. Finally, the organizational culture can be characterized as open, trustful, or collective where willingness to share knowledge is high; or as confidential, distrustful, or individual where there are high barriers to knowledge sharing (see Maier, 2004, for a definition of and empirical results about this typology of KM initiatives). The type of initiative determines the type of KMS for its support.

Processes

KMSs are developed to support and enhance knowledge-intensive tasks, processes, or projects (Detlor, 2002; Jennex & Olfmann, 2003) of, for example, knowledge creation, organization, storage, retrieval, transfer, refinement and packaging, (re)use, revision, and feedback, also called the knowledge life cycle, ultimately to support knowledge work (Davenport, Jarvenpaa, & Beers, 1996). In this view, a KMS provides a seamless pipeline for the flow of explicit knowledge through a refinement process (Zack, 1999).

Comprehensive Platform

Whereas the focus on processes can be seen as a user-centric approach, an IT-centric approach provides a base system to capture and distribute knowledge (Jennex & Olfmann, 2003). This platform is then used throughout the organization. In this case, a KMS is not an application system targeted at a single KM initiative, but a platform that can be used either as is to support knowledge processes or as the integrating base system and repository on which KM application systems are

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