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Deploying internal knowledge portals: Three major challenges

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ABSTRACT

Knowledge portals (KPs) are highly integrative knowledge management systems (KMSs) that promise to improve the efficiency and effectiveness of the use of organizational knowledge. KPs have the potential to stimulate the processes of knowledge management and knowledge integration; improve communication and collaboration; and to increase the competitiveness of the firm. However, KPs face major challenges in practice, and many KP implementation efforts fail. This paper provides an extensive review of current information system (IS) research on KPs. It focuses on internal KPs and suggests that there are three major deployment challenges: (1) sufficient participation, (2) a favorable organizational culture, and (3) knowledge integration.

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1. Introduction

The knowledge-based view of the firm [81] describes knowledge as a key resource in organizations, suggesting that organizations can be viewed as knowledge systems [2,37,102]. However, as knowledge per se resides solely in the minds of individuals, the knowledge within an organization is highly distributed, often suboptimally allocated, and not readily available where it is needed. The problem of dispersed knowledge suggests the value of knowledge integration (KI), which denotes the combination and systematization of individuals' knowledge to make it available to others as valuable, context-sensitive knowledge [2]. Grant [42] says that the integration of individuals' specialized knowledge is the essence of organizational capability.

One way of achieving KI is to deploy a knowledge portal (KP), a type of knowledge management system (KMS) that strives to provide a "one-stop knowledge shop." KPs are in effect a relatively new class of system, integrating repository and network functionalities. They provide a single point of access to the available knowledge in an organization (or even beyond), reprocessed in such a way that it is useful and applicable for a knowledge-seeking user. Furthermore, they have the potential to stimulate the processes of knowledge management and KI; improve communication and collaboration; and increase the competitiveness of the firm.

However, many organizations experience difficulties in obtaining full value from their KP implementations, despite (in some cases) spending millions of dollars on them [27]. A key problem is that KPs pose challenges beyond those in other information systems (ISs) and KMSs in particular, as our literature review below demonstrates. These challenges are related to the different perspectives of stakeholders and the effort of integrating or translating between these perspectives. It seems that knowledge is quite an intractable resource, and implementers of KPs struggle both to get individuals to contribute their knowledge and to provide knowledge seekers with useful reprocessed knowledge.

Given that research on KPs has now been taking place for just over one decade, we believe it is an appropriate time to summarize and capture the current state of the art in IS research as per KPs. Hence, the first contribution of this paper is to provide a review of previous empirical studies of actually implemented KPs (see the Appendices for a complete list). The purpose of this review is to take stock of the current state of the art regarding KPs and identify the most important challenges that organizations face in deploying them. The three major deployment challenges that we identify are research gaps that now need to be filled. The second contribution is to provide some direction for future research and, in particular, research that addresses the challenges that we have identified. However, instead of simply suggesting future directions, we actually propose a set of hypotheses that IS researchers might use in their studies. The overall aim is to help organizations in their efforts to deploy internal KPs.

This paper is organized as follows. We first define and conceptualize KPs as systems integrating knowledge management and portal functionality. We then identify three main challenges in

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the context of deploying KPs in the organizational context through an extensive review and analysis of empirical studies of implemented KPs. The three deployment challenges found are (1) sufficient participation (SP), (2) a favorable organizational culture (OC), and (3) KI. We discuss these challenges and provide a set of testable hypotheses about the challenges related to the performance of KPs. The final section is the conclusions and implications.

2. Definition and components of KPs

2.1. A definition of KPs

Drawing on the KMS literature, *knowledge* can be defined as a justified belief that potentially increases an entity’s ability to take effective action [1]. In this view, knowledge is possessed and exercised by persons [34] and is derived from flows of information mentally processed relative to existing beliefs and commitments [75]. It is subjective [33,77]; dynamic [27,38]; not self-contained [102]; socially constructed [1,44,109]; and affective [49,64,66]. Knowledge as defined above only exists in an individual’s mind [1], [34]. Knowledge can be decoupled from an individual’s mind in the form of knowledge artifacts that can be physically stored as documents, records, videos, etc. [25,24].

Knowledge management stands for the processes of “identifying and leveraging the collective knowledge in an organization to help the organization compete” [1][1]: 113, addressing knowledge creation, knowledge storage and retrieval, knowledge transfer, and knowledge application [1,51,82]. Knowledge management is complicated by the nature of knowledge and the need to address it indirectly through knowledge artifacts.

KMSs are systems that manage or provide access to knowledge artifacts. Several types of KMSs can be distinguished by the source of the knowledge provided, i.e., whether it is internal or external. Internal KMS process knowledge originating only from members of the organization, regardless of the knowledge seekers. External KMSs involve knowledge flows from external sources toward the internal sphere (note that most of the time external KMSs will also address internal knowledge flows). Issues including questions about appropriate standards [54,55]; knowledge leakage from internal to external [13]; multilingual environments [111]; and knowledge politics [23] arise.

A *portal* is a system designed to provide secure, customizable, personalizable, integrated access to dynamic information from a variety of sources, in a variety of source formats, wherever it is needed [30,95]. An important aspect of a portal is the repository of information to which it provides (ubiquitous) access. Its gateway character is commonly mentioned in the form of a web site [95]. In organizational contexts, portals are embedded in an organization’s intranet. The integration of Internet access and related network functionalities are supplementary features.

A KP is one type of KMS [7,90,92,95,116], which integrates knowledge management and portal functionalities as defined above. A KP purposely supports and stimulates interlinked processes of knowledge management such as knowledge transfer, knowledge storage and retrieval, knowledge creation, and knowledge application [51], thus addressing inefficiency and ineffectiveness in the use of organizational knowledge processes. KPs potentially foster mutual knowledge and understanding, and hence foster connections and social ties among users [96]. One of their most important features is their focus on KI [57,90], the so called “one-stop knowledge shop.” Integrating knowledge is important as it can lead to higher competitiveness [2,42,80] by transforming specific knowledge into collectively valuable knowledge [77]. KPs specifically address organizational capabilities derived from organizational learning [90].

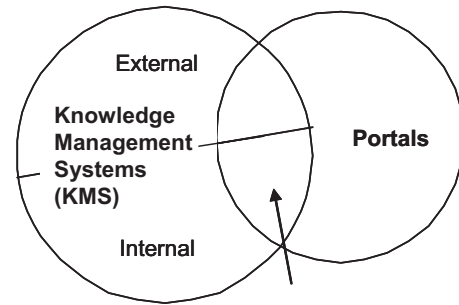


Fig. 1. Internal Knowledge Portals.

In this paper, we focus on internal KPs only – processing knowledge originating from members of the organization (see Fig. 1) – and disregard systems implemented on interorganizational levels, although some of our insights might be applicable to the latter as well.

2.2. KP components and embedded functionalities

We will discuss the typical components of a KP: (1) knowledge repositories; (2) knowledge organization systems; (3) search; (4) applications and services; (5) collaboration and communication tools; (6) personalization and role management; and (7) the unified interface (see Fig. 2). We thereby are able to distinguish between the repository and the network focus of a KP. A KP with a repository focus means that it exists primarily to provide access to an organization’s knowledge repository artifacts in a codified form and hence can be accessed by one person at a time. A KP with a network focus, however, exists primarily to foster interaction among KP users.

2.3. Knowledge repositories

In the context of KI, providing and integrating access to an organization’s knowledge repositories of knowledge artifacts in a codified form is a key task for KPs [20,78,100]. We refer to this functionality of KPs as the *repository focus*. Repositories can be as simple as plain databases [14] or more sophisticated by, for example, including synthesized knowledge artifacts such as codified best practices [43,68].

2.4. Search

For all KMSs, search represents an essential part of the knowledge retrieval process. Basic categories are standard, concept-based, and metadata search [20]. The integration of varying sources and evolving insights into search is a particularly

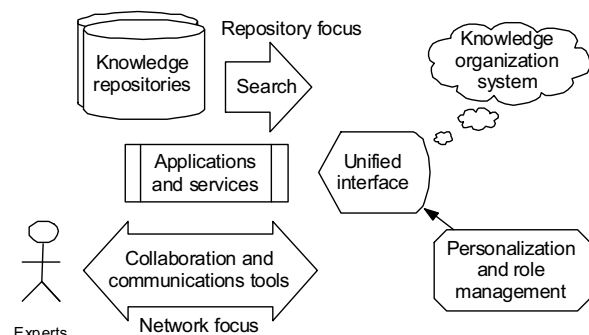


Fig. 2. The Concept of a Knowledge Portal and its Components.

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