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Knowledge sourcing from repositories: The role of system characteristics and psychological climate

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ABSTRACT

This paper draws on the knowledge management literature to develop hypotheses that relate key knowledge repository (KR) characteristics and psychological climate to KR knowledge sourcing behavior these hypotheses are tested using survey data from 110 technical support agents from seven companies. The results reveal that searchability (finding knowledge in the KR), actionability (applying retrieved knowledge to problem solving) and support for knowledge contribution are characteristics of a KR that predict its use. Moreover, two of these relationships are moderated by the degree to which a knowledge worker perceives a climate that is conducive to KR knowledge sourcing (high autonomy, high innovation, and low work pressure).

1. Introduction

Today, many companies deploy knowledge repositories (KRs) to support knowledge workers [34,75,104]. A KR is an information technology-based system designed to store codified knowledge for future reuse, including solutions to problems, best practices, and product knowledge [41,57]. KRs have the potential to promote deliberate knowledge sharing and reuse [40], enhance the transfer of best practices, improve decision making, and promote innovation through quicker access to new knowledge [42,70]. However, these benefits are not guaranteed; it has been reported that a significant percentage of KR implementations fail [31,57]. One notable driver behind this phenomenon is the underutilization of the KR as a source of knowledge [33]. Naturally, an organization cannot achieve the return on its KR investment unless employees use the KR as a knowledge source, a behavior designated herein as *KR knowledge sourcing* [88]. Because KR knowledge sourcing is integral to knowledge management (KM) success, there are significant practical and theoretical incentives to better understanding how and why knowledge workers decide to use (or not use) a KR as a knowledge source.

Research suggests that KM-related behaviors are driven by individual, organizational, and technological factors [25,69,94]. Accordingly, some studies have explored the socio-organizational antecedents of KR knowledge sourcing, including the individual characteristics of knowledge seekers, job characteristics, and other organizational factors (e.g., [41,42]). Other studies have focused on technological aspects, examining how the perceived characteristics of a KR (e.g., ease of use and usefulness) influence the overall satisfaction with the KR or general knowledge-sharing activities (e.g., [64,65]). However, evidence suggests that the influence of these technological factors on individual behaviors does not occur in isolation but is instead shaped by the *psychological climate* (the user-perceived organizational environment) in which it is situated [8,50]. In the KM domain, several studies have explored either the antecedents of KR knowledge sourcing (e.g., [9,41,101]) or the effects of psychological climate on general KM-related behaviors (e.g., [8,50,51]); however, there is a lack of research that combines these perspectives to examine how user perceptions of specific KR characteristics interact with perceptions of climate to influence the actual task of KR knowledge sourcing.

In this study, our objective is to develop greater theoretical insight into KR knowledge sourcing by examining whether and how it is influenced by the interaction of key user perceptions of KR characteristics together with the psychological climate in which it is embedded. Illuminating the nature of this interaction between perceived technology characteristics and climate carries important

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implications for both KM theory and practice. From a theoretical perspective, it is generally accepted that the perceptions of technology characteristics (e.g., ease of use and usefulness) influence its use, and this relationship has generally been substantiated within the KM domain [9,64,65]. However, research also argues that information technology is inextricably embedded within an organizational context that continuously shapes its use and the consequences of this use [66]. It is logical, then, to conclude that any effect of the perceived IT characteristics must also be interwoven with the perceptions of the climate in which it is situated [3]. Indeed, many KM studies have acknowledged the importance of climate in influencing KM-related behaviors [41,50,51], and some have begun to explore the interactions between climate perceptions and KR-related variables (e.g., [29]). However, to date, this research has yielded limited insights into how exactly these variables interact to influence actual knowledge sourcing behavior, leaving many unanswered questions for both theoreticians and practitioners. For example, do users' perceptions of KR characteristics have a relatively static effect on its actual use as a knowledge source, or are these perceptions more relevant in some environments than in others? Are there certain climate characteristics that could be used as levers to enhance or stymie the relationship between perceived KR characteristics and use? The answers to such questions have important implications not only for theoretical development but also for KM practitioners who are seeking to generate returns on their investments in KRs as a knowledge source.

This study offers two primary contributions to developing theory and practice with regard to KR knowledge sourcing. First, we show that three enabling KR characteristics – searchability, actionability, and support for knowledge contribution – are important determinants of whether a KR is used as a knowledge source, with actionability being the strongest predictor of KR knowledge sourcing. Although other studies have explored the effects of certain perceived KR characteristics on other KM-related outcomes [10,64,65], to date, the theoretical link between these perceived characteristics and the reported use of the KR as a knowledge source has not been well established. Second, we show that the relationships between these characteristics and KR knowledge sourcing change based on the climate in which they are situated. Many studies have identified climate as an important factor in KM (e.g., [5]), but relatively few have studied it empirically (e.g., [8]). This paper shows that climate interacts with the perceived characteristics of the KM system, thus providing more evidence that, for a KM system, climate must not be overlooked in the ongoing theoretical development and practical implementation of these systems. Specifically, our findings suggest that autonomy, innovation, and work pressure are three KM-related climate variables that interact with the perceptions of the KR characteristics to enhance or diminish knowledge sourcing behavior. These results extend the existing literature by offering a more nuanced, task-specific theoretical lens on the use of a KR as a knowledge source.

2. Theoretical background

In an effort to develop theory surrounding knowledge sourcing behavior, empirical research has begun to explore the factors that influence knowledge sourcing in general and knowledge sourcing from a KR in particular (see Table 1 for a summary). Much of this work draws from social–psychological theories that invoke various individual or contextual elements to account for knowledge contribution and retrieval. Such elements include the intellectual demands of the job, individual learning orientation, work pressure, risk aversion, attitudes toward knowledge seeking, social relationships, facilitating conditions, and knowledge reuse habits [41,42,46].

Although the social–psychological perspective clearly contributes to our understanding of KR knowledge sourcing, it does not account for a set of factors that is likely critical to influencing KR use: the perceived characteristics of the KR system itself. Research on information systems acceptance has consistently shown that individuals' choices regarding system use are based on their perceptions of the costs and consequences of using the system, which derive from judgments of the system characteristics [1]. Moreover, the relationship between the perceived technology characteristics and technology use often depends on contextual factors [3], which are commonly identified as a part of the *climate* in which the system and its users are embedded. Climate consists of a set of measurable properties that are specific to an organization and perceived by individuals who work in the environment [79,96], and it has been found to be a key factor in shaping information technology-related behaviors and outcomes [15,37,50,51]. Climate can be conceptualized as organizational (a quasi-objective, collective summary assessment of the characteristics of the work setting) or psychological (an individual's subjective assessment and interpretation of the work environment) [17]. Because we explore individual-level behaviors in this study, we focus on psychological climate (hereafter referred to as *climate*) [17,62,86].

The KM literature features a handful of studies that have begun to explore how various KR characteristics (such as output quality and searchability), combined with climate-related factors, influence individuals' perceived usefulness of KR, individuals' satisfaction with KR, and overall KM success (e.g., [10,53,57,64]). However, with few exceptions [57,59], this emergent work has not empirically examined the direct effect of the perceived KR characteristics on actual KR knowledge sourcing behavior or how this effect is moderated by perceptions of organizational climate among knowledge seekers. Moreover, studies that have attempted to link perceived KR characteristics with KR knowledge sourcing have generally focused on broad, generic system characteristics, most commonly perceived usefulness and perceived ease of use (e.g., [9,46]). Although these two factors offer a parsimonious account of general IT usage intention, the question remains regarding "what kind of utilities 'perceived usefulness' represents to the users in different system contexts" ([46], p. 827). The literature on task-technology fit suggests that the use of a technology for a specific task depends on the degree to which the capabilities of the technology match the specific demands of the task [39], particularly in knowledge-driven applications [43,67]. Thus, researchers [5,16,52] have called for a more granular exploration of how and why specialized systems (e.g., KRs) are used to support specific tasks (e.g., knowledge sourcing).

The present study expands the theory of KR knowledge sourcing by exploring how individuals' reported use of the KR as a knowledge source is influenced by their perceptions of sourcing-related KR characteristics and the climate in which this system is implemented.[2] We develop and test a research model that integrates three themes from prior research. First, based on the technology adoption and success literature [22,24,54,55,95,100], we postulate that the degree of KR use as a knowledge source will be affected by user perceptions of certain KR characteristics that are germane to the knowledge sourcing task. Second, because our focus is on the task of knowledge

[2] This study examines these issues in the same context as that of prior KM research, but extends the nomological network surrounding KR knowledge sourcing by examining the influence of perceived KR characteristics, as opposed to competing knowledge sources [41] or the onsequents of KR knowledge sourcing [29].