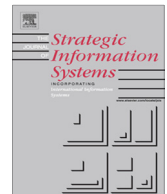




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The effects of collecting and connecting activities on knowledge creation in organizations

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ABSTRACT

Knowledge management in organizations aims to create an environment that facilitates knowledge work in order to improve knowledge creation and organizational performance. Since social software has been added to the portfolio of technologies for knowledge management, the emphasis of support for knowledge work has shifted from collecting manifestations of knowledge to connecting people. While this strategic move tremendously increased the connectivity of people, there is little evidence on its effects on knowledge creation. Building on the concept of knowledge activities and theories of organizational knowledge creation, we investigate how organizational and IT mechanisms that support collecting and connecting activities affect knowledge creation using a stratified sample of 126 European organizations. The paper offers two contributions to explain knowledge creation in organizations: (1) we empirically validate the claim that individual knowledge creation is a prerequisite of collective knowledge creation; (2) we differentiate between support for collecting and connecting activities and explain the link between organizational and IT mechanisms as input and knowledge creation as output. Organizations can promote knowledge creation by a strategy that combines support for collecting and connecting activities, and designs mechanisms for collecting activities targeted at individuals plus mechanisms for connecting activities targeted at individuals and collectives.

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Introduction

An organization's success is increasingly dependent on its strategic ability to manage knowledge effectively (Galliers, 1999) as the share of semi- or unstructured knowledge work (Drucker, 1957) has continuously risen during the last decades (Wolff, 2005). The way knowledge is handled in organizations is seen as a key differentiator between organizations and as a source for competitive advantage advocated by the resource-based view (Grant, 1991; Wernerfelt, 1984) and the knowledge-based theory of the firm (Grant, 1996; Kogut and Zander, 1992; Spender, 1996). Organizations apply organizational and IT mechanisms to establish an environment that is conducive to knowledge work (Davis, 2002) and to address the need for constant communication and acquisition of knowledge dispersed among employees (Hayek, 1945). With such managerial interventions, organizations enact conditions that enable, encourage, or facilitate knowledge creation to improve innovation, learning (Nambisan et al., 1999; Nonaka, 1994; Nonaka et al., 2006), and, ultimately, an organization's performance (Holsapple and Wu, 2011; Zack et al., 2009).

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Information systems are key to support processes of knowledge creation, transfer, or retention (Argote et al., 2003) in organizations (Newell and Galliers, 2006). Researchers distinguish between information systems support for collecting manifestations of knowledge and information systems support for connecting people (Bloodgood and Salisbury, 2001; Hansen et al., 1999; Zack, 1999). Collecting activities gather externalized knowledge that is represented in digital resources and stored in a knowledge repository (Markus, 2001). Individuals and collectives jointly handle these representations of knowledge in intertwining activities (Kallinikos et al., 2013; Kane and Alavi, 2008). Connecting activities link individuals and collectives by facilitating material, informational, or social exchange (Kolb, 2008). These links enable gaining timely access to valued knowledge of others (Borgatti and Cross, 2003) and encourage people to collaborate (Gold et al., 2001; Haefliger et al., 2011). Recently, online communities and social software have been added to the portfolio of technologies for knowledge work in organizations (Faraj et al., 2011; von Krogh, 2012). We observe that social software's strategic imperative for more openness (Gold et al., 2001; Haefliger et al., 2011) boosts connectivity (Dery et al., 2014; Mazmanian et al., 2013) and knowledge creation (Razmerita et al., 2014).

The differentiation into collecting and connecting activities is important for organizations to decide on what activities to target when they intend to promote knowledge creation. Specifically, investigating the effects of support for collecting and connecting activities is relevant for managers, teams, and individuals who are concerned with the selection of mechanisms to facilitate knowledge creation. While researchers found that organizational mechanisms (Nambisan et al., 1999) and IT mechanisms (Alavi and Leidner, 2001) are positively related with organizational knowledge creation, they have not yet distinguished between the effects of support mechanisms for collecting and connecting activities on organizational knowledge creation. Assessing these effects is difficult due to the consequences ranging from individual to organizational levels of analysis (Gray, 2000) and the corresponding ambiguity around individuals versus collectives as the locus of knowledge (von Krogh, 2009). Thus, we need to study knowledge creation at the individual and the collective level (Allard, 2004; Crossan et al., 2011; Kane and Alavi, 2007; Merali, 2000; Nonaka, 1994) considering individual knowledge creation as a prerequisite of collective knowledge creation (von Krogh, 2009).

We address this gap by investigating the relationship between support mechanisms and knowledge creation with the concept of knowledge activities (Davenport et al., 1996; Kelloway and Barling, 2000; Meyer and Zack, 1996). We build on the input-process-output model (Hackman and Morris, 1978; McGrath, 1964) and the integrative framework for studying knowledge management enablers, processes, and organizational performance (Lee and Choi, 2003). The research question in this paper is: what are the effects of supporting knowledge activities on knowledge creation in organizations? To answer this research question, we performed a survey with a sample of 126 European organizations stratified according to size, sector and knowledge intensity. We analysed the data collected with a structural equation model to assess the effects of support for collecting and connecting activities on individual and collective knowledge creation.

Theoretical background and hypotheses

We first discuss knowledge creation in organizations and the concept of knowledge activities before we turn to the effects of support for collecting and connecting activities on knowledge creation.

Knowledge creation in organizations

Organizational knowledge creation theory explains the process of making available and amplifying knowledge created by individuals as well as crystallizing and connecting it to an organization's knowledge system (Nonaka et al., 2006). This process aims at improving an organization's capabilities to solve problems and to achieve goals (Li and Kettinger, 2006). Organizational knowledge creation is not envisioned as a sequential process, but as continuous upgrades of the organizational knowledge base transcending boundaries between individuals and between knowledge of varying epistemological forms, such as tacit and explicit knowledge (Lyles and Schwenk, 1992). Knowledge creation in organizations has been investigated at the individual level and the collective level (Allard, 2004; Crossan et al., 2011; Kane and Alavi, 2007; Merali, 2000; Nonaka, 1994).

Individual knowledge creation represents the starting point for organizational knowledge creation (Crossan et al., 1999; Nonaka and Takeuchi, 1995; Nonaka et al., 2006; Salisbury, 2008). Theories on individual knowledge creation focus on personal knowledge that is the contribution that individuals bring to situations, which enables them to think, interact, and perform, and on the handling of personal knowledge in organizational contexts (Eraut, 2004; Simon, 1991). Individuals innovate (a) by observing and interpreting new phenomena, creating abstractions, and implementing them for applications to situations or (b) by giving new meaning to previously observed phenomena and connecting them to situations at hand (Amar and Juneja, 2008). Individuals as locus of knowledge (von Krogh, 2009) generate and apply knowledge when working with colleagues who have different backgrounds and different kinds of expertise (Engeström, 1994).

Collective knowledge creation takes place when individuals team up, for example in communities (Brown and Duguid, 1991; Lave and Wenger, 1991) or informal networks (Krackhardt and Hanson, 1993). Theories on collective knowledge creation focus on organizing principles (Kogut and Zander, 1992) that allow formal or informal groups of employees to build and maintain a knowledge system (Nonaka et al., 2006), to coordinate their reflection, to formulate, and to solve problems relevant to the social unit (von Krogh, 2009). Both individual and collective knowledge creation are to a large extent informal

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