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Knowledge creation in the eco-system: Research imperatives

Georg von Krogh, Nina Geilinger *

ETH Zurich, Weinbergstr. 56, 8092 Zurich, Switzerland

KEYWORDS

Knowledge creation;
Physical space;
Virtual space;
Organization theory;
Eco-system

Summary Proponents of organizational knowledge creation theory have long recognized the importance of “spaces” for knowledge creation within organizations and, recently, in the eco-system to which the organization belongs. We argue that while knowledge creation in virtual spaces, such as online communities, is well theorized and researched, there is still limited understanding of how a physical space enables or constrains knowledge creation. This gap in the literature is particularly obvious in terms of knowledge creation beyond organizational boundaries, such as how knowledge flows informally in an eco-system of organizations in geographically proximate spaces. Based on a presentation of select relevant literature, we develop five research imperatives with the intention of reinvigorating the debate on physical space in organizational knowledge creation theory.

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Introduction

Many authors have pointed out the need to understand the importance of context in organizational knowledge creation, including work, structure, process, and organizational culture (Brusoni & Prencipe, 2001; von Krogh, Nonaka, & Rechsteiner, 2012; Walsh, Bhatt, & Bartunek, 2009). In organizational knowledge creation theory, context has often been captured in the Japanese word *ba*, which means “place” (Nonaka & Konno, 1998). Work on this subject has also highlighted the need to understand context as the place where knowledge creation becomes localized, but few authors have specified the most pressing research issues when investigating such localization.

Compared to other areas of research in organizational knowledge creation theory, the focus on localization, particularly on how knowledge is created in an eco-system of organizations, has progressed less rapidly. In this essay, we seek to energize research on spaces for knowledge creation beyond organizational boundaries, according to the theory, in the eco-system to which an organization belongs (Nonaka & Toyama, 2005). We develop five research imperatives on the localization of knowledge creation and contribute to reinvigorating an important debate.

The article is organized as follows. In the next section, we introduce organizational knowledge creation theory in more detail. This introduction is followed by a presentation of the review method and the results on existing work that localizes the knowledge creation process in virtual and physical spaces within and between organizations. Next, we develop the research imperatives and then conclude the essay.

* Corresponding author. Tel.: +41 44 632 98 45.
E-mail address: ngeilinger@ethz.ch (N. Geilinger).

Organizational knowledge creation

Knowledge creation is an integral part of what organizations do and why they exist and is a fundamental reason why people choose to join and contribute to them (Conner & Prahalad, 1996; Kogut & Zander, 1992). Although it may be intuitively understood that knowledge matters a great deal to the everyday life of organizations, how organizations create this knowledge is a multifaceted question that requires analysis at many levels, from the individual to the overall organizational entity. During two decades of development, organization knowledge creation theory has placed particular emphasis on the intertwined nature of processes, knowledge assets, and context (Nonaka, 1994; Sawhney & Prandelli, 2000). The processes of knowledge creation both feed on and output knowledge assets. Knowledge assets, such as expertise, teams, patents, or databases, deserve analysis in their own right, which often leads to important insights regarding the way managers apply knowledge assets to achieve results for their organizations (Shu, Page, Gao, & Jiang, 2012).

In addition to process characteristics and assets, Nonaka and Konno (1998) suggest that knowledge creation processes are embedded in the contexts or “spaces” of organizations. Such spaces can be physical or virtual. They may also be “mental” or “cultural” in the sense of people’s private or collective reflections of what they know and do. Places for knowledge creation are bounded sites or locations within and across organizational boundaries (see Figure 1). The prominence of space in the theory is driven by an understanding of knowledge, not as purely abstract or theoretical, but as primarily attached to people (embodied), practices (embedded), and artifacts (Nonaka & Takeuchi, 1995).

Knowledge creation in “virtual spaces” has received extensive attention in the academic literature. Alavi and Leidner (2001) reviewed various implementations of information systems supporting organizational knowledge creation. A taxonomy of situations developed by Markus (2001) shows how knowledge is reused and created with the help

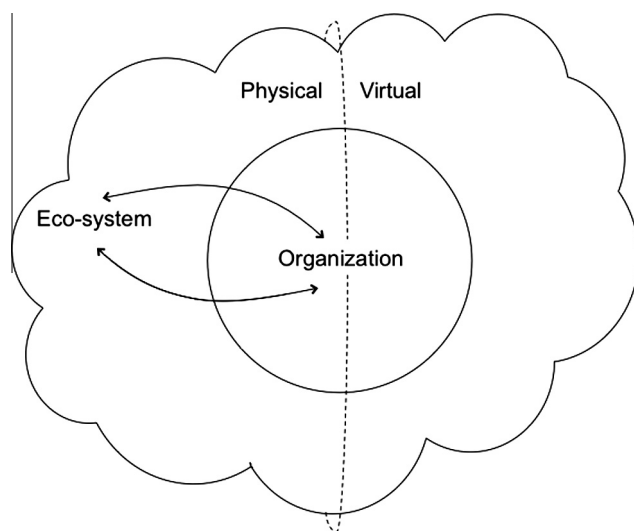


Figure 1 The spaces of knowledge creation.

of information systems. Paroutis and Al Saleh (2009) studied organizations that use Web 2.0 technologies to share knowledge in virtual spaces. Arling and Chun (2011) investigated how information systems are used in an organization to support knowledge creation, and they conclude that mature knowledge management systems catering to forms of knowledge ranging from tacit to explicit are most effective. Such work demonstrates that information systems support knowledge creation at various levels, and, the effective spaces in which knowledge is stored and reused are frequently virtual.

Recent work also argues that part of the knowledge creation process itself, such as combination, is enabled by virtual places that often span organizational boundaries. Organizations communicate and exchange knowledge in a virtual space within their eco-system, as shown, for example, in Eng’s (2004) study of high-tech organizations in Cambridge, in the United Kingdom. Mahr and Lievens (2012) show how external lead users of products work with firms in digital environments to create explicit knowledge. Based on their expertise, these lead users contribute ideas that the firm can readily arrange and integrate into new product development. Burkhard, Hill, and Venkatsubramanian (2011) demonstrate how an organization and its customers, interacting through emerging web-based networks, jointly create new knowledge in a virtual space. To do so, the organization broadened its traditional knowledge management perspective beyond organizational boundaries.

Although the increasing attention devoted to virtual places in recent years has been positive for the advancement of the theory, it is our belief that works on the dimensions of the physical places from which organizational knowledge creation emerges has drifted to the background. Steyaert and Katz (2004) make a similar claim regarding insufficient research in the area of entrepreneurship and localization. Aside from discussing the role of physical space, these authors call for further research on the discursive and social spaces in which entrepreneurship is inscribed. Consistent with their view, we consider a focus on physical space, or on the localization of organizational knowledge creation, to be vitally important for three reasons. First, tacit knowledge is the basis for organizational knowledge creation. While it has been argued that tacit knowledge may, to some extent, emerge through people’s interactions in virtual space (Spaeth, Stuermer, & von Krogh, 2010; Tee & Karney, 2010; see also Jonsson, Holmstrom, & Lyytinen, 2009), it is clear that physical interaction in a physical space is the primary condition for socialization. Second, managers choose aspects of their organization’s physical environment (e.g., the design of buildings or the proximity to other organizations) for a number of reasons, such as cost, security, aesthetics, belief in efficient design, or as a signal of power to observers. Yet, it remains largely unknown how and under what circumstances concerns about knowledge creation play a role in these management decisions. Third, an emphasis on the physical environment along its various dimensions in the theories and research on organizational knowledge creation has the advantage of complementing the observations of interactions in virtual space.

One aspect of the studies on knowledge creation in virtual places is a deep concern for the processes that span

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