Managing Interorganizational Innovation Projects: Mitigating the Negative Effects of Equivocality Through Knowledge Search Strategies

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Equivocality, or divergent interpretations and understandings of tasks and knowledge, has negative effects on performance because it increases conflicts and creates communication and coordination challenges in inter-organizational innovation projects. However, equivocality may also stimulate team members to discuss beliefs and interpretations in ways that provide improved understanding of knowledge and tasks. We theorize that mitigation of negative effects of equivocality on project performance is conditional on explorative or exploitative knowledge search mode. Exploitative search (increasing search depth) allows for rapid learning based on the partners' existing knowledge, but it also limits a team's ability to interpret and combine diverse knowledge. Explorative search (increasing search breadth), on the other hand, allows for novel combinations of diverse knowledge and thereby alleviates the negative effect of equivocality on performance. Based on quantitative data from 251 respondents in 52 heavy-engineering innovation projects in four multinational corporations based in Sweden and from their 29 collaborating partner firms worldwide, we find that equivocality reduces project performance, but that joint explorative search mitigates the negative effect of equivocality on project performance. However, we do not find support for the moderation effect of exploitative search on the relationship between equivocality and project performance. Theoretical and managerial contributions as well as limitations and suggestions for future research are presented.

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Introduction

Managing equivocality is a central organizational challenge (Daft and Weick, 1984), especially in the context of innovation. Equivocality refers to multiple and conflicting interpretations of a goal, situation, or task (Daft and Lengel, 1986; Daft and Macintosh, 1981; Daft et al., 1987; Weick, 1979). It is distinct from the more widely studied concept of uncertainty, which refers to "the difference between the amount of information required to perform a task and the amount of information already possessed by the organization" (Galbraith, 1973, p. 36).[1] Although equivocality is largely neglected in prior innovation management literature, the concept is a defining characteristic of innovation, because it entails creating new knowledge or recombining existing knowledge and resources in novel ways (Frishammar et al., 2011; Koufteros et al., 2002).

While research focuses on innovation activities distributed among functions, innovation is increasingly conducted across organizational boundaries. In inter-organizational innovation efforts equivocality represents an increasing challenge, as it is often more prevalent when participants from different organizations collaborate for innovation activities (Cronin and Weingart, 2007; Daft and Lengel, 1986; Simonin, 1999; Thomas and Trevino, 1993). Members of collaborating firms relying on diverse experiences, resources, capabilities, and frames of reference often have competing interpretations of tasks, routines, and information (Kleinsmann et al., 2010). Thus, they need to manage their differences in frames of reference, interests, and jargon (Baer et al., 2013; Cronin and Weingart, 2007; Dougherty, 1992).

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[1] Equivocality and uncertainty are relevant and challenging in interorganizational innovation efforts. However, due to their inherent differences, it is important to distinguish between uncertainty and equivocality (Daft and Lengel, 1986). Prior innovation literature has, however, mainly addressed uncertainty and suggested various ways to manage it when engaging in innovation activities (Hong et al., 2004; Tatikonda and Rosenthal, 2000). For example, Stock and Tatikonda (2008) argued that interorganizational collaboration improves the capacity to generate, aggregate and disseminate information, because partners bring different information, experiences, and knowledge to the table. However, even though an interorganizational team may possess the required information (to resolve uncertainty), interpretations of such information may still be equivocal.

Increasingly, as organizations engage in joint innovation projects, equivocality acts as a double-edged sword. On the one hand, equivocality can facilitate sharing and synthesis of competing interpretations that, in turn, lead to more informed knowledge search and exploitation. In innovation projects, equivocality facilitates development of diverging and competing interpretations that improve recombinations of knowledge (Fleming, 2001). This further enhances knowledge development routines to consider diverging possibilities for development as teams embark on innovation projects (cf. Taylor and Greve, 2006). Equivocality also stimulates interorganizational innovation teams to discuss their salient beliefs and interpretations, that in turn, challenge the existing understanding of information and tasks. Managing equivocality by interactively discussing and negotiating different alternatives may prime elicitation, combination, and complementation of knowledge in diverse teams such that the team avoids premature decision closure (Cyert and March, 1963; Weick, 1979; Zack, 2001). On the other hand, equivocality can also restrain a collaborating team from developing a mutual understanding of what needs to be developed in terms of selecting suitable technologies; sequencing and coordinating innovation activities; and recombining technological components to obtain a coherent innovation effort. As such, equivocality may also have severe negative effects on innovation project performance.

A central question is thus: how can equivocality be managed in inter-organizational innovation projects by mitigating its negative effects? More specifically, what strategies can interorganizational innovation teams use to mitigate these negative effects? Due to limited studies addressing equivocality in an innovation context, the importance of the potentially positive aspects associated with managing equivocality by mitigating its negative effects on performance in innovation projects are less well understood.

Following the knowledge-based view, Nonaka (1994, p. 14) argued that organizations "ought not only to process information efficiently, but also create information and knowledge." These dual and related processes of information processing and knowledge creation are especially central in innovation efforts, in which the cooperating organizations may first define problems through information processing and then search and develop knowledge to solve those problems (Nonaka, 1994). However, prior studies are scarce on how information processing challenges during early innovation stages (i.e., equivocality in problem definition) are related to subsequent knowledge creation processes (i.e., knowledge search strategies in problem-solving processes). Equivocality is fundamental to how new and existing information and knowledge are understood and interpreted in innovation teams. As such, we posit that equivocality could be managed through knowledge search strategies that either provide refinement and selection (i.e., exploitative search) or variation and synthesis (i.e., explorative search) of diverse interpretations of tasks and knowledge.

Prior studies have distinguished between two main types of search strategies: explorative and exploitative search, both of which are important for innovation efforts (Caner and Tyler, 2014; Katila and Ahuja, 2002; Tippmann et al., 2013). When relying on exploitative search, interorganizational innovation teams search for local information that is closely related to current knowledge and routines. Exploitative search thereby relies on a replication strategy (Tippmann et al., 2014), in which collaborating members search locally to draw on familiar and accumulated knowledge. Explorative search, in contrast, involves seeking, assimilating, and applying new and distant information. Hence, it involves a wider search for knowledge in distant domains to generate new combinations. It avoids relying on overlaps in existing knowledge and mental models (Tippmann et al., 2014).

Implicitly pinpointing the limited efficacy of search depth or exploitation, Weick (1979) and Daft and Weick (1984) argued that relying on preexisting rules and routines to coordinate shared interpretations may misrepresent the diversity of views, which is not beneficial when managing equivocality. Indirectly supporting the need for search breadth or exploration, Daft and Weick (1984) also argued that organizations that continuously experiment, test, and try new behaviors based on searching for new and distant information manage equivocality more effectively. Exploring new and distant knowledge allows teams to manage equivocality by developing novel interpretations and knowledge combinations.

Based on Daft and Weick (1984), we propose that exploitative search strategies may exacerbate the negative effects of equivocality on the performance of interorganizational innovation efforts. Building shared knowledge, interpretations, and meanings through search depth (or, exploitative search) could lead to missed knowledge and resource recombination opportunities. This might occur because members of each organization draw only on their respective accumulated resources and knowledge, attempting to merge and combine what they already know best. Conversely, explorative search efforts may mitigate the negative effects of equivocality on project performance, because collaborating teams might find it easier to search for new ways to synthesize their knowledge to develop novel solutions. More importantly, it increases the loci of divergent interpretations to harness the benefits of managing equivocality and promotes synthesis of novel knowledge and resource recombinations to produce more satisfactory outcomes of innovative efforts.

The proposed framework extends prior literature in several ways. First, despite significant conceptual discourse on equivocality by Richard Daft, Karl Weick, and others, empirical studies on the effects of equivocality are scarce (Stevens, 2014). This deficiency is especially apparent in the context of interorganizational relationships, where equivocality is highly prevalent. Instead, prior studies have mainly focused on intraorganizational teams when studying equivocality, innovation, or exploration and exploitation (e.g., Dougherty, 1992; Jansen et al., 2008; Somech and Drach-Zahavy, 2013). Second, and more importantly, equivocality is scarcely investigated in innovation management research, which has focused primarily on uncertainty (e.g., Tatikonda and Rosenthal, 2000). The framework proposed in the present study not only explains equivocality and project performance relationship, but it is also the first to introduce the role of explorative and exploitative search strategies as a means to manage equivocality. Third, recent work in innovation has focused on the need for knowledge diversity for success in innovation project (Singh and Fleming, 2010; Taylor and Greve, 2006). In interorganizational innovation proj-