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Performance implications of cross-functional cooperation in new product development: the mediating role of organizational learning

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ABSTRACT

Cross-functional cooperation, the simultaneous occurrence of cooperation and competition across firm functions, has been shown to be vital for firm performance. However, the literature has lacked insight into how competitive advantage emerges under such conditions, and which contingencies affect the cooperation-performance relationship. In the context of new product development, this study (a) assesses whether organizational learning translates cooperation among functional units into firm performance, and (b) investigates the moderating role of power sharing. Based on survey data from 331 German companies in various industries, our findings confirm that organizational learning mediates the association between cross-functional cooperation and firm performance. In addition, the results show that power sharing moderates the relationship between cross-functional cooperation and organizational learning. This study extends the limited literature on cross-functional cooperation, and contributes to the current debate on whether intra-firm competition constrains or promotes learning in new product development.

1. Introduction

Academics and practitioners agree that competition between firms promotes product innovation (Chen & Miller, 2007; Nickell, 1996; Staack & Moebius, 2015). New product developers aim to generate and exploit product knowledge, which allows firms to sustainably differentiate themselves on competitive product markets (Caiazza, Richardson, & Audretsch, 2015). The formation of such knowledge is called organizational learning (Fiol & Lyles, 1985; Levinthal & March, 1993).

When considering intra-firm relations, it has been a long-accepted belief that cooperation constitutes the sole fundament of learning (Brettel, Heinemann, Engelen, & Neubauer, 2011; Song & Thieme, 2006). However, a closer look at the pros of inter-firm competition reveals that these arguments may also hold true in intra-firm settings, and that competition within firms may also promote learning. Competition provides incentives for new product development units to strive for performance differentials (McCann & Bahl, 2017; Whitley, 2000). Competitive tensions may motivate department managers to provide deliverables earlier, or distinguish their knowledge, compared to other innovation initiatives within their respective firms (Wei, Yi, & Guo, 2014). To achieve this, actors in a competitive setting stay alert for relevant information from other units, and actively promote knowledge

spillovers—a capability called absorptive capacity (Cohen & Levinthal, 1990). Competing units have increased capacity to absorb each other's knowledge, which fosters learning (Dussauge, Garrette, & Mitchell, 2000; Ritala & Hurmelinna-Laukkanen, 2013). Superior learning outcomes can help units to achieve an advantage in the internal struggle for resources such as capital, compensation, status, and attention from the leadership (Kaplan, Murray, & Henderson, 2003).

Like the conflicting theoretical views on whether intra-firm competition fosters or impedes knowledge development, prior empirical results on the impact of competition on firms' learning capabilities are not straightforward as well: Taylor (2010: 38) notes that earlier research predominantly portrays “internal competition [...] as an undesirable behavior that hinders firm adaptation.” However, recent empirical investigations indicate that firm-internal competition may also contribute to the learning process (Taylor, 2010; Theeke, 2016). Acknowledging these ambiguous findings on the effects of cooperation and competition on firm learning, we argue that each camp is partially right.

Our study proposes that one needs to look at cooperation and competition together to evaluate how superior levels in organizational learning, and, finally, firm performance, can be achieved. We thus build up on the theoretical concept of cross-functional cooperation by Luo, Slotegraaf, and Pan (2006), which expresses the duality of the

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antagonistic strategies of cooperation and competition across functional areas within a firm. Luo et al.'s concept describes a unit's capacity to absorb new knowledge from internal collaborative relationships, while at the same time striving for competitive positioning in the internal struggle over scarce resources.

In this vein, we argue that cooperation and competition together facilitate better learning. On the one hand, studies have shown that organizational learning is dependent on the amount of shared knowledge and hence cooperative collaboration (De Luca & Atuahene-Gima, 2007; García-Morales, Jiménez-Barrionuevo, & Gutiérrez-Gutiérrez, 2012; Maltz & Kohli, 2000; Rindfleisch & Moorman, 2001). On the other hand, these studies largely neglect the beneficial effects of competitive tensions that may occur in cooperative relationships. Coopetition researchers argue that such tensions could make interactions more efficient, and, potentially, result in a deeper exploitation of available information (Luo et al., 2006; Tsai, 2002). While we know that coopetition between functions increases firm performance (Luo et al., 2006), current literature remains vague on how its underlying and seemingly contradictory relations lead to organizational-level outcomes. We thus inquire: Does organizational learning translate cross-functional coopetition into enhanced firm performance in a new product development setting?

Another important question is which organizational contingencies support the effectiveness of cross-functional coopetition, and which do not. Organization scholars suggest that power distribution is an important part of organizational culture and influences intra-firm relationships. All functions and their members generally strive for more power and status, which increases the likelihood of conflicts and competitive tensions (Astley & Sachdeva, 1984; Granovetter, 1985; Sozen, 2012). At the same time, researchers argue that power sharing fosters open-mindedness, knowledge sharing, trust, and cooperation—and that it moderates competitive tensions within firms (Hartzell & Hoodie, 2003; Hurley & Hult, 1998; Kanter, 1983; Thompson, 1965; Van de Ven, 1986). Since power sharing seems to affect both cooperation and competition, and is said to be an important factor in cross-functional interactions, we thus also aim to elucidate how the degree of power sharing moderates the relationship of cross-functional coopetition, learning, and performance.

To test our research model, we collect and empirically analyze survey data from 331 department heads involved in new product development and research & development (R&D). This study makes several contributions to the existing body of research. Based on an investigation in a new product development setting, our research provides a more granular understanding of the circumstances under which internal competition can be beneficial for knowledge development on the firm level. We therefore offer a holistic view of the seemingly contradictory findings of researchers who emphasize collaboration and others who argue in favor of competition (Taylor, 2010; Theeke, 2016). We also extend the work on intra-firm coopetition by offering a deeper understanding of the coopetition-performance link. Adding to the findings of Luo et al. (2006), we investigate how organizational learning transforms cross-functional cooperative tensions into firm performance. We thereby add to the current debate among management theorists on how mediating mechanisms translate organizational antecedents into competitive advantage (Barney & Felin, 2013; Felin, Foss, & Ployhart, 2015). Finally, analyzing the moderating role of power sharing in organizational culture, we shed light on organizational contingencies of effective cross-functional coopetition.

2. Theoretical background

2.1. The concept of cross-functional coopetition

Coopetition refers to the simultaneous and paradoxical occurrence of cooperation and competition in relationships between at least two actors (Bengtsson & Kock, 2000, 2014; Brandenburger & Nalebuff,

1996). Coopetitive relationships may exist at the intra-firm and the inter-firm level (Dorn, Schweiger, & Albers, 2016; Walley, 2007). While coopetition at the inter-firm level has been extensively researched (cf. Bengtsson & Raza-Ullah, 2016, for an overview), academia has granted scant attention to the intra-firm level (Dorn et al., 2016). Intra-firm coopetition can be differentiated into coopetition among business units, functional units (also known simply as *functions*), and teams. This paper explores the second type of intra-firm coopetition, cross-functional coopetition (Luo et al., 2006). We focus our investigation on new product development functions for two reasons. First, research has shown that the lateral exchange of information among different functions plays a decisive role in achieving higher innovativeness and marketing success, especially in new product development environments (Brettel et al., 2011; Griffin & Hauser, 1996; Song & Thieme, 2006). Second, new product development is a core organizational function that is needed to generate superior customer value and realize sustained competitive advantage (Krasnikov & Jayachandran, 2008; Treacy & Wiersema, 1993).

Most empirical research on cross-functional interactions focuses on the effects of either solely cooperative or solely competitive relationships. Intra-firm cooperation has been shown to enhance outcomes such as project performance (Ernst, Hoyer, & Rübsaamen, 2010; Olson, Walker, Ruckert, & Bonner, 2001), product success (Troy, Hirunyawipada, & Paswan, 2008), and knowledge sharing (Ernst et al., 2010). Literature on cross-functional competition, in contrast, is more ambiguous and reveals both positive and negative effects: Nohria and Gulati (1996) found evidence for an inverted U-shaped relation between intra-firm competition and performance, while other authors remain vague about generalized propositions, or find negative performance effects of competition such as barriers to knowledge transfer (e.g., Birkinshaw & Lingblad, 2005; Maltz & Kohli, 1996).

Table 1 gives an overview of prior works investigating intra-firm coopetition on the levels of business unit, function, and team. Within the small subsection of studies on coopetition among functional units, researchers observe that cross-functional coopetition positively influences exploratory innovation (Strese, Meuer, Flatten, & Brettel, 2016a) and financial performance (Luo et al., 2006). However, cross-functional coopetition seems to play a more ambiguous role with regard to new product performance. While Lin (2007) finds that cross-functional cooperation and competition relate positively to new product performance, Tsai and Hsu (2014) observe that high levels of competition in cooperative functional relationships lower the positive effect on new product performance. Strese et al. (2016a) show mixed results regarding the effect of cross-functional coopetition on exploitative innovation. These seemingly contradictory findings, and the general lack of studies investigating the concept, call for additional research into the implications of intra-firm coopetition in new product development.

2.2. Dimensions of coopetition

To conceptualize cross-functional coopetition, we use the predominant approach, disaggregating the concept into competition and cooperation (e.g., Tsai & Hsu, 2014).

2.2.1. Cross-functional competition

Cross-functional competition refers primarily to the struggle to appropriate tangible and intangible resources within the firm (Luo et al., 2006). It also covers competition for strategic importance, and tensions that may result from incongruent goals or strategies among functions. Cross-functional competition is said to be related to decreased trust and increased benchmarking, resulting in higher inter-functional transparency (Khanna, Gulati, & Nohria, 1998; Riege, 2005). On the one hand, such an environment might curb the willingness to share secrets and proprietary information (Hansen, Mors, & Løvås, 2005; Maltz & Kohli, 1996; Tsai, 2002). On the other hand, cross-functional competition might motivate units to try to understand other functions better and

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