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Organizing coopetition for innovation: The case of wireless telecommunication sector in Europe

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ABSTRACT

Prior research highlighted the prevalence of coopetition as a strategy for innovation in high-tech industries for several reasons but the link between forms of coopetition and innovation is still understudied. In order to fill this gap in the literature, this study attempts to answer the following question: *which form of coopetition favors which type of innovation*? The results of an embedded case study approach of five Celtic-Plus projects (European Eureka Program) in the wireless telecommunication sector show that two forms of coopetition exist: multiple and dyadic. While multiple coopetition is successfully pursued for radical innovation, dyadic coopetition is more suitable for incremental innovation. Different innovation objectives lead to different levels of value creation/appropriation tensions between coopetitors. In order for competitors to pursue radical or incremental innovation successfully, different levels of social capital related to different choices of partners are needed. The role of social capital levels as a moderating factor between value creation/appropriation tensions and innovation type is discussed in detail. The study proposes a conceptual model that links coopetition strategy motives to the types of coopetition and their results in terms of radical or incremental innovation. Finally, a framework that helps firms to balance between multiple/dyadic–vertical/horizontal collaboration according to the levels of value creation/appropriation tensions and social capital is proposed.

1. Introduction

Prior research highlighted the prevalence of coopetition – defined widely in terms of simultaneous cooperation and competition – as a strategy for innovation in high-tech industries for several reasons: short product life cycle, technology convergence and high R&D costs (Gnyawali & Park, 2009). In terms of form, this strategy could be dyadic between two firms or multiple between more than two firms, vertical – *players who are vertically adjacent to each other in the industry value chain* – or horizontal – *players who are rivals at the same stage in the industry value chain and who collaborate with each other in order to compete with rival pairs or groups* (Gnyawali, He, & Madhavan, 2008, p. 392). However, the link between the type of coopetition and innovation is still understudied.

While prior research on the relationship between coopetition and innovation highlighted factors such as firms' absorptive capacity, knowledge base and others that enhance or undermine the capacity of firms to create/appropriate value from coopetition, or factors that lead to incremental or radical innovation from coopetition (Hamel, Doz, & Prahalad, 1989; Ritala & Hurmelinna-Laukkanen, 2009, 2013), research has yet to uncover how organizations choose among different forms of coopetition (Schiavone & Simoni, 2011) and how this choice leads to different types of innovation: incremental or radical.

To do so, we investigated 5 successful projects in the wireless telecommunication sector from the Celtic-Plus (Eureka Program). We followed a qualitative research approach based on an embedded case study methodology (Baxter & Jack, 2008; Yin, 2008). 15 interviews were conducted at different levels: cluster officials, R&D managers, and coopetitive project coordinators.

In this study, we propose a conceptual model in which we link the form of coopetition strategy and the radical or incremental type of innovation. We distinguish between two forms of coopetition – dyadic and multiple – which are suitable, according to the extent of partners' prior interaction and collaboration, either to incremental or radical innovation. In addition, we propose a coopetition for innovation framework where we position these two forms of coopetition in relation to vertical cooperation according to the level of social capital between partners and the level of tensions between value creation/appropriation.

In the following sections, we develop our theoretical background, followed by methodological elements and results. Then, we discuss

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our results compared to prior literature and conclude by presenting our contributions, limitations and future research agenda.

2. Theoretical background

2.1. Coopetition strategy typologies

Research on coopetition strategy has been growing in the last number of years. This body of research often treated coopetition and innovation as two interconnected phenomena (Schiavone & Simoni, 2011). In high-tech industries, coopetition is chosen as a strategy for innovation considering three main characteristics: short product life cycle, technology convergence and high R&D costs (Gnyawali & Park, 2009). Whereas at firm level, three factors motivate competitors[1] to collaborate together for innovation: standard setting; learning more about their rivals' competencies; and finally solving common problems outside the realms of competition and/or influencing the nature of the regulatory environment (Tether, 2002). More precisely, competitors adopt a coopetition strategy when their need for external resources and their relative position in the industry are strong (Bengtsson & Kock, 1999, 2000).

Several typologies have been proposed in the literature to characterize coopetition strategy. Among the main attempts, a first distinction is based on the number of actors and/or the location of their activities in the industry value chain (cf. Gnyawali et al., 2008; Padula & Dagnino, 2007). Depending on the number of collaborating competitors, coopetition could be dyadic (between two competitors), triadic (among three competitors), or multiple (composed of more than three competitors). Based on the number of value chain activities covered by coopetition, this latter could be vertical (players who are vertically adjacent to each other in the industry value chain) or horizontal (rivals at the same stage in the industry value chain). Another distinction is based on the prior experience of partners and leads to a distinction between inter and intra-network coopetition (Schiavone & Simoni, 2011). Specifically, partners' prior experience in successful coopetitive efforts affects organizations' decisions about the preferred form of coopetitive relationships. Firms with low or high prior experience will prefer to collaborate with their competitors within a specific network of proven reliability – i.e. intra-network coopetition – instead of multiplying their efforts in several networks built by other competing organizations. On the contrary, between these two levels of prior experience, firms prefer to form an inter-network coopetition. Finally, in a more dynamic perspective and considering the changing of partners' interdependencies, Pellegrin-Boucher, Le Roy, and Gurau (2013), in their study of the EPR industry, distinguish between coopetition with vertical cooperation (vertical cooperation involves partner firms in a supplier–customer relationships, while they compete either before or after this cooperation phase) and coopetition with horizontal cooperation (two firms collaborate in the value-added chain of activities before or after the phase in which they directly compete).

While characterizing coopetition is really important and adds to our knowledge of this strategy, allowing these typologies without defining more precisely their finality renders them just descriptive and reduces their usefulness in terms of managerial decision making. In this contribution, we consider how to link these forms of coopetition to the type of innovation. In the following section we discuss how different firms' motives and objectives lead to the preference of different coopetition forms.

2.2. Competitors' motives and coopetition forms

When discussing competitors' motives to get involved in coopetitive projects, the question of value creation/appropriation takes an important place. More precisely, it is the imbalance between value creation and value appropriation that drives competitors to cooperate or collaborators to start to compete (Gnyawali et al., 2008). The authors indicate that cooperation in value creation may take place in the exploration phase of knowledge management, while competition in the exploitation phase.

When the technological challenge is high, compared to firms' current knowledge base in a specific technological domain and to the technology available in the market, competitors are willing to work together. They collaborate in order to face high levels of technological and market uncertainty as well as the risks and costs related to exploring new technological boundaries. These latter aspects create high potential for value creation, represented by innovation and contribution to standards and dominant design (Abernathy & Utterback, 1978; Shapiro & Varian, 1998) at the industry level. Prior research indicates that multi-partner alliances become useful for fostering industry-wide innovation efforts, enhancing compatibility, and creating public goods (Lavie, Lechner, & Singh, 2007). The participation of more competitors in collaboration leads to lower amounts of risk and fewer costs to be borne by each of them. In addition, there is more certainty about the development trajectory of technology. The high potential for value creation will convince partners that a wider space exists for value creation and differentiation for each of them.

On the other hand, this is not the case when the objective of competitors is to conclude the innovation process (exploitation logic) because of knowledge leakage, opportunistic behavior, hold-up problems (Annansingh, 2006) and competitive intelligence which are greater when collaboration includes competitors (Oxley & Sampson, 2004). In fact, the knowledge used in this phase is codified and easily appropriated by competitors. So, this situation leads to fewer competitors willing to get involved in collaboration because of the low potential for value creation compared to the high probability of imitation, and consequently the loss of competitive advantage locus based on differentiation logic. As a consequence, competitors perceive that there is a little value potential in entering this type of collaboration which leads to a reduced number of partners that are willing to coopete as it is the case in dyadic and triadic coopetition.

2.3. Social capital and value creation/appropriation dynamics

In the relational view, Dyer and Singh (1998) highlighted the role of inter-organizational trust and informal safeguards in governing inter-organizational relationships. In coopetition, Ritala, Hurmelinna-Laukkanen, and Blomqvist (2009) considered the interplay of social, organizational and legal governance as a main success factor in the governance of coopetitive service development. This interplay enabled effective knowledge sharing and mutual value creation. Trust is crucial in coopetition in both inter-organizational and inter-personal settings. The authors suggested that more research is needed to discern the role of social capital in general and trust in particular in governing coopetitive relationships.

In the two forms of coopetition (i.e. dyadic and multiple), different types of relational patterns may exist between participating partners based on the level of social capital. We define social capital according to its function and its beneficial effects on social aggregates, referring to Coleman (1988), for whom social capital is composed of a variety of entities with two common characteristics: a) they all consist of some aspect of social structure; b) they facilitate certain actions of actors (individuals or firms) in this structure. We can distinguish between three different forms of social capital: 1) Obligations, expectations and trust-value of social relations; 2) Channels of information; and 3) Norms and sanctions.

The social capital perspective considers that in order for behavior and institutions to be analyzed, they have to be viewed as constrained by on-going social relations. More precisely, embeddedness approaches (Granovetter, 1985) prioritize different conditions (social capital and structure) in which the social action takes place (Ghezzi & Mingione,

[1] We define competitors as "*firms operating in the same industry, offering similar products, and targeting similar customers*" (Chen, 1996, 104).